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# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

EDITED BY

JOHN NACHBAR, M.A., M.D.

UNDER THE DIRECTION OF

THE EDITORIAL COMMITTEE

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***VOLUME THE FOURTH***

SESSION 1910-11

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## PART I

SECTION OF ANÆSTHETICS  BALNEOLOGICAL & CLIMATOLOGICAL SECTION
SECTION FOR THE STUDY OF DISEASE IN CHILDREN
CLINICAL SECTION  DERMATOLOGICAL SECTION
ELECTRO-THERAPEUTICAL SECTION

LONDON
LONGMANS, GREEN & CO., PATERNOSTER ROW
1911

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# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

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*VOLUME THE FOURTH*

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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1910-11

## SECTION OF ANÆSTHETICS

LONDON
LONGMANS, GREEN & CO., PATERNOSTER ROW
1911

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The Council think it right to state that the Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

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# Section of Anæsthetics.

November 4, 1910.

Mr. RICHARD GILL, Vice-President of the Section, in the Chair.

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## Prolonged Anæsthesia maintained by Ether and Gas alternately.

By A. L. FLEMMING.

I AM afraid that I am doing an unprecedented thing by asking you to discuss a method which I have employed in so small a number of cases as 86. However, I hope that you will be generous and give me the full benefit of your opinions; and, after all, one of the chief attractions offered by a Society such as ours is the opportunity it affords an individual member of picking the brains of the other members, and of having access, through their kindness in discussion, to a large accumulation of clinical material from which to draw conclusions. I trust, then, that you will not be impatient when I state that my reason for introducing to-night my subject of "Prolonged Anæsthesia under Ether, alternating with Gas and Oxygen," is to gain information rather than to impart it, for I hope to derive much help from your criticism and comments.

The question which must be more or less in the mind of every anæsthetist at the conclusion of each operation is whether or not—as far as his share of the responsibility goes—he has left his patient in the best possible condition; and the point is rendered extremely difficult to answer with a satisfactory degree of certainty, owing to the multiplicity and variety of factors which must be taken into consideration, such

as the physical condition or the temperament of the patient, the nature of the surgical procedure, and the method of anæsthetization employed.

Surgeons may be very ready to take the blame when shock occurs, or to attribute nausea and vomiting to the patient's disposition; but my experience with the method under consideration has, during the past year, taught me to regard as in a measure preventible a certain proportion of unfortunate sequelæ which hitherto had seemed inevitable. This fact is my excuse for troubling you with my remarks to-night.

We may, I think, claim that we can tide our patients fairly successfully through the exhausting and dangerous procedures of modern surgery—by such measures as regulating the dosage so as to limit the degree to intoxication; by judiciously stimulating the circulatory and respiratory systems; and by so adjusting the depth of anæsthesia that painful stimuli may produce the least possible effect upon the central nervous system. In fact, as regards getting our patients through a trying ordeal, we may feel considerable confidence. But the after-effects, especially nausea, vomiting, and reactionary shock, leave room for improvement. To me, visiting patients an hour or so after severe operations has sometimes proved very disappointing; for certain patients who on leaving the operating theatre had presented a satisfactory appearance, with pulse well under 100 and temperatures but slightly reduced, were then found looking pale, with quick pulses, clammy skins, and temperatures, perhaps, three degrees below normal—the change of condition not infrequently dating from an act of vomiting.

The question arises, Have we, in such cases, so stimulated the patient with ether as to partially conceal the surgical shock which has been taking place, or have we so poisoned him that his vasomotor system is seriously impaired? Dr. Halliburton, in his Croonian Lectures, 1905, entitled "The Chemical Side of Nervous Activity," suggests a reason for such reactionary shock occurring more frequently after ether than after chloroform. If we accept this statement, together with the deductions which Dr. G. Crile draws from his neurocytological studies of the brain of animals under ether and under nitrous oxide respectively, also the findings of Graham in his immunity experiments, then we have special reasons for exercising caution in the way we employ ether.

As to clinical evidence, my own cases are too few in number to exclude the possibility of coincidence; but such as they are, they tend to support the feeling that ether used indiscriminately may lead to serious reduction of vitality. The temperature sometimes remains subnormal for many hours. The tubercle and staphylococcus opsonic index

is lowered; and occasionally a case is met with where post-operative collapse sets in quite suddenly and unexpectedly. The cases which seem most susceptible are, I think, those in which large masses of tissue have to be removed, such as amputations of limbs or of carcinomatous breasts, or resections of gut, especially excision of the rectum.

For many years I have felt that gas might be more generally used for prolonged anæsthesias, but owing to warning notes struck by many anæsthetists of repute, who reported not only the inconvenient rigidity but also faintness, dilated heart, persistent nausea, respiratory difficulties, &c., in connexion with gas and oxygen, I limited its use to short operations and to cases where shock or serious vomiting was especially dreaded. Two obvious objections to nitrous-oxide and oxygen anæsthesia are rigidity and expense. By alternating ether with nitrous oxide and oxygen, these objections, in a large measure, disappear, without materially interfering with the advantages of the latter anæsthetic. The amount of gas used is so small as to come within practical bounds, and the occurrence of rigidity can be avoided entirely. In this connexion it is interesting to note that Dr. Teter, of Cleveland, who uses nitrous oxide and oxygen to such a large extent, and who admits difficulty from rigidity in 10 per cent. of cases not previously submitted to morphia injections, adds a low percentage of ether vapour to his nitrous oxide and oxygen when this complication arises.

The method which I have now used in a good many very grave operations, and of which I have formed a good opinion, is that of anæsthetizing the patient with ether, and when a certain degree of ether saturation has been procured, changing to nitrous oxide and oxygen, the latter anæsthetic being again abandoned in favour of ether on the occurrence of certain indications, and so on. By this means, in my experience, a perfect relaxation can be maintained with a minimum quantity of the gases and of ether, and an anæsthesia produced from which recovery is quick and, in many details, most satisfactory.

The technique of administration varies somewhat, according to which of two objects is the principal goal aimed at—namely, the avoidance of surgical shock, or the avoidance of ether toxæmia. In the former case, special care is taken to keep ether anæsthesia deepened by nitrous oxide and oxygen whilst shock-producing trauma is taking place; whereas in the latter case, the operation is generally allowed to get well under way with ether anæsthesia before the nitrous oxide is applied, and the drugs are subsequently alternated in accordance with the indications to be described presently. The generally accepted custom as regards

preliminary morphia and atropine obtains, with this reserve: that if morphia has been used, care must be taken lest the breathing under nitrous oxide and oxygen becomes shallow, particularly towards the end of a long operation, when more gas and less ether will be in use than in the earlier stages.

The details of technique might be described as follows: The patient is anæsthetized with ether, by a closed, or preferably by the open, method, this method being continued until the breathing—especially expiration—is quite free from any sort of hesitation; until the swallowing, coughing and retching reflexes are well in abeyance—in fact, until ether anæsthesia is thoroughly and completely established. At this point a change may be made to nitrous oxide and oxygen in the proportion of 96 or 95 nitrous oxide to 4 or 5 oxygen. It will be seen that if the corneal reflex was still present, but dulled, before the change was made, it will now be abolished after a few breaths of gas, but the pupil will remain small and the colour quite good. After two minutes or so, an increase must be made in the proportion of oxygen, otherwise cyanosis is produced; it will be necessary to increase the oxygen until 12, 15, or even 20 per cent. is needed. Frequent breaths of fresh air are admitted, and generally at the end of five minutes it is advisable to return to ether. The best indications as to when to change from gas to ether seem to be:—

(1) The narrowing of the margin between deep and light anæsthesia as evidenced by a change in the respiratory rhythm, especially in the form of a slight hesitation in the expiratory act, to be watched for during the fresh-air intervals.

(2) When the amount of gas necessary to maintain relaxation has become so great that a certain degree of cyanosis cannot be avoided.

The second application of ether will probably extend over five minutes, after which gas can be applied for ten minutes. In practice, it is found that as the operation proceeds the ether applications become shorter and the intervals between them longer.

A common time-record of the distribution of the two anæsthetics would be represented thus:—

| | | |
|---|---|---|
| Ether ... ... ... ... ... | 15 | minutes |
| Gas ... ... ... ... ... ... | 5 | ,, |
| Ether ... ... ... ... ... | 10 | ,, |
| Gas ... ... ... ... ... ... | 10 | ,, |
| Ether ... ... ... ... ... | 5 | ,, |
| Gas ... ... ... ... ... ... | 15 | ,, |
| Ether total ... ... ... | 30 | ,, |
| Gas ,, ... ... ... | 30 | ,, |

If gas is kept unduly prolonged, retching is apt to give trouble, partly because the ether anæsthesia is becoming too light and partly because it is occasionally produced by nitrous oxide and oxygen; and this phenomenon is an indication for an immediate return to ether, preferably on the open mask. It is useless to make any attempt to stop it by pushing the nitrous oxide.

As to the classes of patients who have proved to be good subjects, I think they include many who would not be easily anæsthetized by gas and oxygen. For instance, my favourable cases include such types as alcoholics, very stout patients, bronchitics, senile subjects, and one man with empyema. For example :—

E. J., a man aged 35, a very muscular and alcoholic Welsh miner. Operation for hernia: Nitrous oxide and oxygen added because relaxation was difficult to produce with ether only.

E. S., woman, aged 50, very stout, weighing 15 st. Operation for irreducible umbilical hernia: Duration of anæthesia, one hour fifty minutes; no shock or vomiting.

M. A., man, aged 78, bronchitic, emaciated and toxæmic; pulse 120, feeble. Operation, suprapubic cystotomy, for enlarged prostate and cystitis. Duration, forty minutes; one month later, prostatectomy on same patient, duration forty minutes; result as to shock and chest condition satisfactory.

J. W., man, aged 71. Prostatectomy. Duration one hour and a quarter: pulse at end of operation 70; no subsequent shock.

J. L., man, aged 70. Amputation of right leg for diabetic gangrene. Operation thirty minutes; no shock; ether not re-applied after induction.

A. W., man, aged 50. Empyema, resection of two ribs and breaking down of adhesion of chest wall. Duration, fifty-five minutes; no shock.

The advantages which may be claimed for this means of maintaining anæsthesia, when applied to suitable cases by skilled hands, are that it retains the virtues of ether and gas respectively without carrying with it some of their drawbacks. The anæsthesia is even (more so by far than one would expect from such a system of chopping and changing), and shock during and after operation seems to be very slight. It is applicable to a large variety of patients and cases, including those for whom special postures are necessary, such as the lithotomy or the Trendelenburg. Relaxation is good and respiratory movements are rather less vigorous than under ether narcosis. There is a splendidly wide margin between light and deep narcosis.

The quantity of the drugs employed is comparatively small. The average in six cases (four women and two men) for the first hour was :—

| | |
|---|---|
| Nitrous oxide ... .. ... ... | 48 gallons |
| Oxygen ... ... ... ... ... | 6 ,, |
| Ether ... ... ... ... ... | 4½ ounces |

In none of the above cases was the vapour artificially warmed, nor was rebreathing allowed.

The post-operative condition has been encouraging. Recovery has been quick, and although not free from nausea and vomiting, these symptoms have been less troublesome even than after open ether; especially has the improvement been noticeable in a few neurotic subjects, who, on previous occasions, had suffered considerably from sickness after ether or ether and chloroform.

One of the most striking cases I have seen as regards the slight degree of general upset following a severe operation was that of a girl, aged 20, who was anæmic and asthenic, and who was subjected to an extensive operation for the removal of what appeared to be tuberculous (but was later shown to be carcinomatous) disease invading the bones of the pelvis and the deep lumbar and other lymphatic glands. The operation involved a good deal of retracting and "hard work" on the part of the surgeon, and its duration was one and a quarter hours; hæmorrhage was free; morphia was given before, and pituitary and saline during the operation. Recovery was free from nausea or vomiting, and two hours after she left the theatre, the patient asked to be removed from the special small recovery ward to the general ward, "where," she said, "she had more people to speak to." The blood-pressure and temperature charts give evidence of well-maintained vitality during and after operation.

There can be no doubt that there is a causal relationship between lowered vitality and the occurrence of post-operative chest troubles, and in this direction I think the system I am referring to will prove beneficial in certain cases.

If you take exception to my omitting long tables of statistics to support the suggestions I have ventured to make, I can but offer the following explanation: In the first place, my mission is not to prove that this unorthodox method is a panacea for all cases of difficulty; and, in the second place, my cases are far too few to justify the deduction from them of anything more definite than general impressions. They number eighty-six, but are all of a more or less serious nature, and mostly involve operations lasting over an hour, in some instances much longer. My impressions, however, have been so favourable that I felt justified in laying them thus early before the Society for criticism, and I shall consider it quite fair criticism if some suggest that the method involves too much changing and chopping about. My only answer is that, contrary to my own expectation, I have found the resulting anæsthesia

more even when I have employed the alternating system than when I have added a low percentage of ether vapour continuously to the nitrous oxide and oxygen. But the apparatus at my disposal may have been a factor here. I should feel sorry to have to use more complicated machinery, because I have a strong bias in favour of simplicity in apparatus and method.

There is one point upon which I feel some misgiving, and that is the possible propriety of employing rebreathing with gas and oxygen. I have on a few occasions (not included in the eighty-six) mixed the gases in the bag and allowed rebreathing, and without, as far as one could judge, any detriment to the patient, but with a great saving of nitrous oxide. The question turns upon the function of $CO_2$ in the body, and as the subject of acapnia seems now to be engaging the minds of some physiologists, we may find that rebreathing is permissible with gas and oxygen even more than it is with gas only.

## DISCUSSION.

The CHAIRMAN (Mr. Gill) congratulated the author on his able exposition of the subject. His own knowledge of the new systems was not very extensive, but formerly, to gain time and make things a little easier, he used to alternate ether with gas for short operations of ten or fifteen minutes. He used ether not so as to produce a complete ether anæsthesia, but to allow of the patient recovering from the state of cyanosis to which he was liable by the action of the nitrous-oxide gas. One point in the paper he was very glad to hear mentioned was that concerning the limitation of the dose. It did not matter what agent was used as the anæsthetic; it seemed that each person had his own standard. His own conclusion was that the quantity of blood which circulated in the body determined the amount of the agent needed to produce the lowest degree of unconsciousness. He was very glad to hear the author advocate the lowest degree of unconsciousness. In his opinion there was only one degree of anæsthesia, the signs of which were the contracted pupil and the natural colour of the complexion; he was speaking about ether and chloroform. There was an object in his making those remarks, which he would explain later. The paper just read was of very great interest, and he was sure it would be of great use to anæsthetists, because the anticipation of the future of the patient after operation was of the very first import. He could remember the time when, the operation being completed, the patient had to take care of himself. Nowadays, by united efforts, the conditions had changed, and, in his own opinion, in which he hoped he had the support of the meeting, the most important factor in the recovery was the vitality of the patient, which should be reduced as little as possible.

Dr. BLUMFELD was especially interested in Mr. Flemming's experiment, because it was something he had himself tried to achieve, without having hit on the same plan—namely, if it were possible to procure for a long period a condition of nitrous-oxide anæsthesia, and one which was followed afterwards by only the slight effects ensuing upon nitrous-oxide anæsthesia. He had often procured for a considerable time, fifteen minutes or so, anæsthesia with the ordinary nitrous-oxide and ether apparatus, never getting rid of the gas, but deepening it with ether occasionally, and getting relaxation and perfect quiet. He wished to ask Mr. Flemming as to reflex effects. When it came to serious operations, the difficulty with nitrous-oxide anæsthesia seemed to be to avoid reflex effects, such as when there was straining of the abdominal muscles, and similar reflex respiratory effects. He asked whether Mr. Flemming had met with difficulties of that kind, and, if so, whether he had regarded them as an indication to get rid of the nitrous oxide at the time and continue with the ether. He also asked whether Mr. Flemming considered the condition which resulted during the long periods he spoke of was one of anæsthesia due to nitrous oxide in the main, or to an ether anæsthesia which he carried on to the slightest possible extent and continued by nitrous oxide. He thought the attempts were based on the sound idea of trying to keep the patient in an anæsthesia such as that of nitrous oxide and yet avoiding the recovery effects which one would expect from an ether anæsthesia. When reflex effects occurred during the handling of sensitive parts, did Mr. Flemming deepen the anæsthesia by ether, or could he control them with nitrous oxide and oxygen?

Dr. SILK said that all members of the Section had probably had experience of giving nitrous oxide with small amounts of ether for general operations. In his own hands he had found that the effects were disagreeable in the following way: That with a general anæsthetic one depended upon a certain amount of analgesia rather than anæsthesia after the operation; whereas, with the very rapid recovery when nitrous oxide was the main anæsthetizing agent, the patient was brought back to all the misery caused by soreness of the skin incision. Apart from that, his view was that the severity of the after-effects in the way of sickness and shock was largely commensurate with the equality of anæsthesia preserved throughout the operation. If the patient was continually coming almost out of the anæsthesia and then going more deeply under, that increased the subsequent sickness. No doubt Mr. Flemming had been able to maintain that due level of anæsthesia, but others might not be so skilful as that gentleman had been. He hoped that at some future date Mr. Flemming would bring before the Section some further remarks, perhaps supported by more cases, in his own and other people's hands. For cases in which the operation lasted upwards of an hour, the amount of nitrous oxide required, even for a light degree of anæsthesia, must be very great. Thus the method seemed as if it would be cumbersome.

Mr. BOYLE felt very loth to criticize anything that the author had said, because he had known him for a number of years, and was aware how shrewd

an observer he was. But he was puzzled to know how, when changing from ether to gas anæsthesia, a definite level of anæsthesia was maintained. He would imagine that the patient would be very sick after the method, for he believed that sickness after an anæsthetic was in a great measure due to uneven anæsthesia, and he had found that those patients who were allowed to vary between deep and very light anæsthesia suffered far more from the after-effects than those who were kept at an even anæsthesia throughout the operation. It was necessary that more cases should be anæsthetized by the method before one could give an opinion on its merits. He thought that for an operation of any great duration a great deal of anæsthetic must be required; and he asked Mr. Flemming why, when he started the anæsthesia, he did not begin with gas and ether, rather than with ether alone?

Mr. R. W. COLLUM said he had no experience of the method. Though he never alternated between these two anæsthetics, he occasionally used ethyl chloride during ether anæsthesia, if a student was carrying out the anæsthesia and allowed the patient to come round too much before it was noticed by him (the speaker). He then went back to ether; and if the patient came too far round again, the ethyl chloride could be added again. But he did not recommend this practice; it was bad for the patient, because of the amount of sickness it caused afterwards. Patients seemed to be more sick when this change of anæsthetic had been carried out, and therefore he could not understand the patients being less sick under the method just described. In the case of the alcoholic miner mentioned in the paper, he understood that the rigidity could not be got rid of by ether. The same result could be obtained with chloroform, and there was usually no danger in going on for the rest of the operation with chloroform, or, at least, with C.E. mixture. If ether would not banish the rigidity, chloroform might.

Dr. G. A. H. BARTON desired to ask about the point which had already been mentioned—namely, that when the depth of the anæsthesia had been allowed to vary during the operation, the patient was much more likely to be sick than when that was not the case. He asked what were the grounds for that statement. Had those who maintained this compared a series of cases, or was it merely a general impression? Assuming it as a fact, he also desired to know what explanation (if any) was offered for it.

Mr. COLLUM, answering Dr. Barton, said he had not taken careful notes on the matter: what he had said was more or less a general impression. The explanation he had in his own mind was that it was due to the patient swallowing each time he came round.

Dr. SILK, answering the question by Dr. Barton, said he was quite convinced from experience as to the increased sickness when the depth of anæsthesia was irregular.

Mr. HARVEY HILLIARD said he had collected cases extending over a considerable time—nearly a thousand in number—with regard to the question of post-anæsthetic vomiting. He went into the matter to prove that regulating

inhalers caused less after-sickness than the happy-go-lucky method of mask and drop-bottle, or the Clover's inhaler, with which latter the patient was constantly re-breathing. His view was that if one produced a certain depth of anæsthesia, preferably light, and kept the patient at that point during the whole operation, he was much less likely to be sick afterwards than if he had been kept more profoundly under; and, also, there was more sickness when the depth of anæsthesia was constantly varying, as when students were administering. In the cases he had collected that had certainly been proved. Patients who had half per cent. of chloroform vapour, or less, were much less sick than those who had one per cent. or more. And in using the regulating open inhaler for ether, keeping the patient lightly under would result in much less sickness than where the corneal reflex was abolished throughout the operation and a closed inhaler used. In teaching students at the hospital it was necessary to allow them to keep the patient more deeply under, so that the corneal reflex was abolished, or nearly so, because they had some difficulty in keeping at a point of lighter degree of anæsthesia; with deep anæsthesia there was some reserve of safety, since the patient was less likely suddenly to "come round." The objection he felt to Mr. Flemming's method was that he allowed the patient to come relatively round, and then put him more deeply under again by giving ether. Therefore the depth of the anæsthesia was constantly varying. That seemed to involve an unnecessary strain on the vital centres, of heart, and respiration, because those centres were not easily able to accommodate themselves to the varying circumstances. If one was anæsthetizing for several hours at hospital, to be subject to the anxiety of the constant varying of the depth of anæsthesia proposed by Dr. Flemming would be a great strain. He would prefer to keep the patient under an equal degree of anæsthesia during the whole time by a single method.

Mrs. DICKINSON BERRY said lightness of anæsthesia was one of the great preventives of sickness; for some years she had given ether by the open method for goitre cases, and it had been quite exceptional for the patients to be sick at all. They were always kept lightly under. She felt doubtful about post-anæsthetic sickness being due to swallowing, because in those cases it was the custom, towards the end of the operation, to let the patient come nearly round, to strain and swallow, so as to insure there being no hæmorrhage afterwards. They always swallowed, but were very seldom sick. When giving chloroform also in goitre cases the patients were kept lightly under the whole time, and here again sickness was very rare. Perhaps the nitrous-oxide anæsthesia induced by Mr. Flemming was also light.

Mr. FLEMMING, in reply, said most of the speakers had raised the question of the varying depth of anæsthesia. That was exactly the criticism which he himself would have made if he had not seen the method. But only on the previous evening he was anæsthetizing by this system when a retired anæsthetist who was standing by expressed his surprise at the evenness of the anæsthesia by that method. He (Mr. Flemming) would not use a method which did not

enable him to preserve that evenness. He did not permit swallowing to take place, and in his first few cases he had difficulty in knowing when to change from gas to ether. But now he managed to anticipate, and according to the type of patient he knew fairly well how long he would remain under gas. As a matter of fact, as the ether anæsthesia tapered off, the gas anæsthesia was deepened, so that the proper blending of the two resulted in the same depth of anæsthesia. It was surprising how quickly a few drops of ether took effect if the patient had been allowed to come round from gas too far. The knack of anticipating events was the whole difficulty in the system. He began with ethyl chloride and ether, or gas and ether. He used an exact system, counting every drop of ether and every drop of chloroform. He mentioned that in order to show that he did lay stress on the evenness of the anæsthesia. The pupil remained small, and if it should dilate under gas he would immediately go back to ether. He agreed with Mr. Gill that it was a drawback that the anæsthetist's responsibility ended so soon after an operation; surgeons should realize that anæsthetists should be more generally informed about after-troubles, for the after-effects did not wear off very quickly. Reflex effects had been remarkably absent in his cases. In the ordinary way, at the beginning he allowed the operation to get well under way under ether, and when there was dragging on the mesentery, or on the uterus, or manipulations of the abdomen, there did not seem to be the reflex effect which had been mentioned. There seemed to be a sort of intoxication by ether, and the small quantity of nitrous oxide superimposed upon that had a great effect. Two drugs applied together often had a much greater effect than either given singly; that applied to ether and chloroform, and was well recognized with different kinds of alcohol, and might, he suggested, apply also to ether and gas. The combined effect of ether and nitrous oxide was very even. With regard to pain and analgesia, his patients did not come round as quickly as they did after nitrous oxide and oxygen, because he kept up a certain amount of ether saturation all the way through. Dr. Teter, of Cleveland, with whose work anæsthetists were familiar, as he had reported 13,000 cases anæsthetized with nitrous oxide and oxygen, used an even ether saturation all through the operation when necessary. That was the method which, theoretically, one would select, rather than the changing of the anæsthetic. But as he (Mr. Flemming) had found, to his surprise, that the anæsthesia could be kept even under the method now described, he thought he was justified in bringing it before the Section. He had mentioned Welsh miners, because they were a most difficult set of men to deal with,—sensitive, hysterical, alcoholic and powerful, they salivated if they had ether, and were liable to die if they had chloroform. In the ordinary course of events he would have gone on with chloroform in the case referred to, but he tried that particular miner with the new method, and it went smoothly. In answer to Mr. Hilliard, he was surprised that half per cent. chloroform could tide a patient through the whole of an operation, despite anything the surgeon might do. If there were dragging on the mesentery or the kidney it seemed to call for more anæsthetic. He was in sympathy with

what Mrs. Dickinson Berry had said as to open ether administration for goitre cases, and he had found there was practically no vomiting afterwards.

Mr. HARVEY HILLIARD wished to explain that he did not intend to imply that the patient did not sometimes show reflex effects when the liver, uterus, or other viscus was pulled upon.

## A New Inhaler for Administering Nitrous-oxide Gas by the Nasal Method.

By J. F. TREWBY.

THERE are three points to which I should like to draw attention:—

(1) Connexion of the mouth- and nose-pieces by means of a rubber tube.

(2) A simple means of cutting off gas and giving air, fixed on the nose-piece itself, where it is more easily manipulated than elsewhere.

(3) A nasal bag regulator, consisting of two pieces of metal connected by means of a slight spring, the object being to deliver the gas at a slight pressure, rather than the pressure of the stretching of the rubber bag, which is too great a pressure to work with.

The advantages I claim for this apparatus are the following:—

(1) It converts the administration into as simple a procedure as giving gas by the ordinary face-piece method.

(2) It gets over any discomfort to the patient, which occasionally arises in the nasal administration, from the fact that many people who are partial mouth-breathers are unable to breathe freely through the nose, thus causing a feeling of suffocation while they are being got under by the ordinary nose-piece.

(3) It prevents nasal "to and fro" breathing, with its accompanying obstruction, which occurs in nearly all cases of nasal administration, necessitating, in many cases, the starting of the operation when the patient is deeply cyanosed, without being deeply under the influence of nitrous oxide.

(4) If there is any nasal obstruction, which in practice rarely occurs, it gives rise to no trouble during the induction of nitrous-oxide anæsthesia.

# Section of Anæsthetics.

December 2, 1910.

Dr. W. J. McCardie, President of the Section, in the Chair.

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## Hypnotism in Relation to Surgical Anæsthesia.

By Edwin Ash, M.D.

I am very sensible of the honour you have done me in asking me to come here and open this discussion on "Hypnotism in Relation to Surgical Anæsthesia." Although it has not for some years now been disputed that hypnotism can produce an anæsthetic condition in certain individuals, it has not, up to the present time, been given a definite place as a practical means of inducing that state.

It is well known from the authenticated records that have come down to us that Dr. Esdaile was extraordinarily successful in his use of hypnotism as an anæsthetic measure whilst he was in the service of the old East India Company. His records show that a large number of major operations were performed by him without pain to the patient when the sole means of inducing insensibility to pain was hypnotism, or, as he preferred to call it, "mesmerism." There are, of course, some who are inclined to dispute the validity of Dr. Esdaile's reports, seeing that his work was done many years ago, and that consequently his own accounts may have been exaggerated in process of time.

However that may be, we must remember that his work in India was of such account that the Government officials of the day made special reports on his use of hypnotism as a surgical anæsthetic, and, indeed, placed at his disposal a special hospital in Calcutta where he could pursue his investigations. So that apart from Dr. Esdaile's own

private record of the operations he performed under hypnotic anæsthesia, we have also the record of the Mesmeric Hospital of Calcutta. Here he treated an enormous number of cases, both surgical and medical, by "mesmerism"; the official reports giving an account of several hundred operations, major and minor, performed whilst the patients were in a condition of hypnotic anæsthesia.

Esdaile was a firm believer in the transmission hypothesis, and to that end placed his patients in a darkened room and made passes with contact over them until somnambulism was produced. Frequently this did not occur for three or more hours, and so he trained assistants in his methods and kept them "mesmerizing" patients for as many hours as was necessary in each case.

When we read the detailed accounts of Esdaile's work we must marvel at the extraordinary patience he showed in his early attempts at producing surgical anæsthesia; those who have kept up passes for even two hours know that the physical strain of this method is very great indeed.

It cannot be denied that no one else has ever been able to repeat the extraordinary results of Dr. Esdaile in this direction. Why that is we are at a loss to say. In this country operations have occasionally been performed under the influence of hypnotism, a common operation that has been carried out under such circumstances being that of simple dental extraction.

Some years ago Dr. Milne Bramwell, to whose efforts we owe largely the progress that has been made in the investigation and use of hypnotism in recent years, gave a demonstration at Leeds in which several persons had teeth painlessly extracted whilst in a state of hypnotic sleep. Four or five years ago I myself gave a demonstration of the hypnotic state at St. Mary's Hospital, and there one of my subjects had a tooth taken out whilst under the influence of hypnotism, and apparently felt no pain during the process. I may say that that extraction was carried out by one of the students in a very clumsy manner; so much so that in the ordinary state of consciousness the patient would undoubtedly have felt very great pain. I have also used the hypnotic state for the relief of pain in such conditions as the setting of fractures and the opening of superficial abscesses. But the chief difficulty in this connexion has always been that one can never tell if any particular patient is a good subject for this process, or if, even being a good subject, it will be possible to induce a lasting anæsthesia. Experience shows that, taking a rough average, only about one in ten

or twelve persons is likely to be sufficiently influenced by hypnotism as to become insensible to pain at suggestion. That, of course, is a very small proportion. The anæsthetist who can only induce anæsthesia in 10 per cent. of his patients is scarcely a practical man.

However, it is possible that in the immediate future some more certain method of inducing the deeper states of hypnosis will be elaborated, and when that is so I do not hesitate to say that we shall have an ideal anæsthetic at our disposal, which will as far transcend the ordinary method of drug anæsthesia as those did the old and brutal methods of stupefaction which were in vogue before the discovery of chloroform and ether. The advantages of hypnotism as an anæsthetic are very great. Firstly, the duration can be safely prolonged indefinitely; secondly, there is not the remotest danger of heart failure or respiratory disturbance from the procedure. Again, it is possible by suggestion to place a limb in any required position, and it will stay there with very little help from without. Then there is the absolute freedom from the unpleasant after-effects, which even the best anæsthetist must sometimes get with the ordinary method. The process, when effectual, is rapid and certain; there are no disagreeable preliminaries, and the patient is quickly lulled into a pleasant sleep. There are, of course, disadvantages, but such disadvantages as could not possibly weigh in the face of the advantages already mentioned. Thus we know that in a few people the induction of a deep hypnotic state produces some temporary after-confusion of mind, and in others a tendency to lethargy, which may persist for some little time. But I know of no case in which the induction of hypnosis for, say, two or three times has produced any really serious after-effects or weakening of the patient's health.

Now as to the theory of hypnotic anæsthesia. This condition is, as far as can be ascertained, brought about by direct inhibition of cerebral processes, and not by any lowering of the sensibility of sensory nerve-endings, nor by blocking the path of the afferent impulses to the brain. That is, the anæsthesia is essentially similar, in kind, to that produced by anæsthetic drugs in ordinary use, except in that there is no chemical paralysis of the cortical nerve cells, such as I think is generally understood to occur in ordinary anæsthesia. Insensibility to pain as the result of an inhibitory mental process is, of course, far from unknown, even in the ordinary waking stage; thus, injuries obtained on the field of battle, in a struggle, railway accident, or even in a football match, may not be noticed till the excitement of the incident is over. This is no doubt due to the entire concentration of attention on some particular circumstance

not immediately connected with the cause of the pain; that is to say, powerful attraction of attention to certain objects, conditions, or ideas inhibits the consciousness of others. This has a direct and important bearing on hypnotic anæsthesia, in that the hypnotic state can be most readily induced by the concentration of attention on some definite point of consciousness; for example, a bright object, the idea of sleep, the eyes of the operator, a monotonous sound, and so forth. If the attention is strongly concentrated on some train or process of thought, as in profound study, slight stimuli from without may not come into the plane of consciousness. When absorbed in a book or in one's writing, the clock striking, someone coming into the room, or even the telephone bell, may not break in upon one's field of consciousness. This probably explains to some extent the analgesia which directly results from the induction of a deep hypnotic state, and is, I think, characteristic of somnambulism. If one hypnotizes a patient very deeply—say, to the state which in my classification I call active somnambulism—it is usually found that there is insensibility to minor sensory stimuli. In such condition the subject of the experiment will usually show no sign of feeling: a pin-prick, or a pinch of the skin would not be felt, and it might often happen that a small surgical incision could be made without arousing any painful sensation. However, if one tests the somnambulist with such a strong stimulus as the faradaic current applied through the medium of a wire brush, as a rule movements are made, or some exclamation given, showing that pain has been experienced. This analgesia of the hypnotic state itself does not appear to me to be a trustworthy one from the point of view of surgery, but it may be strongly reinforced by the superimposition of a *suggested anæsthesia.* I must make it quite clear that in dealing with hypnotism as a means of producing insensibility to pain we have to deal with, firstly, the more or less incalculable condition of analgesia which goes with the induction of a deep state, and, secondly, with the anæsthesia which can be obtained by suggestion in the hypnotized individual. Now, in anæsthesia produced by suggestion in hypnosis we have a very reliable condition. In a suitable patient the deep state of hypnosis is first obtained, and then suggestions are given that no pain will be felt at particular times or in particular circumstances; and by repetition of such suggestions the required anæsthesia can be kept up practically indefinitely. This is the method which, I think, should be used whenever it is desired to make use of hypnotism for anæsthetic purposes. Lately my own time has been so fully occupied with the development of a system of treatment by suggestion in the waking state that I have not been able

to investigate this very interesting question further. However, I am convinced that it is a field of research that would amply repay any amount of time and trouble that might be expended on it. Even if actual hypnotic anæsthesia is desired by the anæsthetist, I think, in fact I may say I know from experience, that appropriate suggestions will enable the anæsthetic state to be induced much more quickly than otherwise. This is really a development of the usual soothing conversational manner adopted by many anæsthetists.

There is one other way in which hypnosis can be employed in this connexion, and that is by making use of the phenomenon of post-hypnotic influence, or, as it is somewhat absurdly named in most text-books, post-hypnotic suggestion. This depends on the fact that, in some instances, a suggestion can be given to a person in the hypnotic state to be acted upon at some distant date. Thus a somnambulist is told that at a certain time on a given day he will perform a certain action; on returning to the normal he has no knowledge of the suggestion that has been given, but, with a good subject, that suggestion will be carried out when the time comes. It is obvious, of course, that it is the effect, and not the suggestion, which is post-hypnotic. Now, supposing one wanted to make use of this for the purposes of an operation, it would be necessary to hypnotize the patient some days previously and to give him a strong suggestion that at a certain time and place he would feel no pain under any circumstances; this should preferably be done several times, and in suitable cases would answer admirably. However, I think this method is *quite unreliable*, and I do not anticipate its practical development. In passing, I may say that of course I am aware that this phenomenon of post-hypnotic influence might appear to be a very dangerous thing in unscrupulous hands, but I assure you that it is so unreliable that it is doubtful if it could ever be used for questionable purposes, except in the very rarest instances.

That summarizes the chief points in connexion with the production of anæsthesia by hypnotism, and if anyone should discover a reliable and certain means of inducing the hypnotic state, I am inclined to think that this process would, in an enlightened age, entirely replace all other methods of producing insensibility for the purposes of surgery. The position at present is, however, as I indicated in the early part of my remarks, that it is not always easy to find a good subject for hypnotism who is at the same time an individual who wants an operation. If we were to take, say, a hundred consecutive cases we should no doubt find about ten in whom hypnotic anæsthesia could be successfully induced; but

there would be no means of knowing, before we tried to induce the requisite state, which of these patients were those suitable for the procedure. Consequently, the uncertainties and waste of time certain to ensue on attempting to bring the method into routine use place it, for the time being, out of the range of practical politics. There is this to be said, however: that in the case of patients in whom for any reason the administration of a general anæsthetic is undesirable, and the need for operation not immediate, it is quite possible and reasonable to test their suitability as subjects for hypnotic anæsthesia some little time before surgical treatment is carried out. Of course one meets occasionally curious examples of popular and, I am sorry to say, professional ignorance in this respect. I think it has fallen to the lot of most of us who have become known as investigators of these psychological states to be asked at times to perform miracles. What I mean is this: a stranger with raging toothache will rush in and ask if he cannot be hypnotized so that he can have the offending tooth taken out painlessly without the administration of gas. The circumstances of such a case are such that the possibility of the required result being obtained is practically *nil*. Occasionally, a doctor will ring up to know if some particular patient, who does not want a general anæsthetic, can be hypnotized instead, and that some time within the next few hours. No, when it is desired to make use of hypnotism for anæsthetic purposes, the patient should be seen by the anæsthetist some time before the date of operation, and thus only a fair opinion can be given as to its suitability in any particular instance.

I am very often asked, when discussing these matters, as to what kind of persons make the best subjects for hypnotic work, and it is difficult to give a satisfactory answer. Of course, all psychologists are agreed that it is practically impossible to hypnotize a person who is feeble-minded or incapable of concentrating his mind. A strong, healthy individual of the phlegmatic type, who can rarely concentrate his attention in any given direction, certainly makes the best subject. That is about all we can say. It is curious that neurasthenics and nervous people generally are extremely difficult to hypnotize, because they are certainly very responsive to suggestion in some directions. I always think it is because their over-active minds jump so quickly from one point to another that they are unable to concentrate their minds long enough on any one thing for hypnosis to be induced. On the whole, men are easier to influence than women, in my experience, and children between five and twelve or fourteen years of age easiest of all.

Before leaving this subject I think I ought to refer to the curious phenomenon of anæsthesia obtained by suggestion in the waking state. Few medical practitioners seem aware that such a remarkable thing may occur, but it is nevertheless a fact. Of course we see a similar condition very often in cases of hysteria; it is not at all unusual for such patients to be so responsive that anæsthetic areas may be produced by suggestion. But there are a number of people—I know no means of distinguishing them—who are also very responsive to suggestion in the waking state, and in whom anæsthesia to pin-pricks or to the effects of a small incision can be readily produced by strong affirmatory suggestions. I think, if further experiments were made in this direction, some very interesting results might be obtained.

## DISCUSSION.

Dr. LLOYD TUCKEY expressed his entire agreement with Dr. Ash's able paper. During the twenty years he had used hypnotism in practice he had only had a few experiences of surgical anæsthesia produced by hypnotism. He had used it in dental cases, sometimes with very good results. One lady was much afraid of taking gas or chloroform, and he hypnotized her in the dentist's drawing-room. She became somnambulistic, and, in obedience to suggestion, walked downstairs to the dental surgery, sat in a chair as directed, and opened her mouth. Several teeth were removed painlessly, and then she was told to walk back to the drawing-room, and was awakened. She was obviously unconscious of what had happened in the interval. He had hypnotized her on previous occasions. A physician, hearing of that and other cases, called one day and asked to be treated at once in the same way, so that he could have several stumps extracted painlessly. Of course hypnotism would have no effect upon an unprepared patient in that state of mind. Dr. Creed, of Sydney, New South Wales, used hypnotism a great deal in surgery. He would make the appropriate suggestions some time before the operation, and the susceptible patient would go to the dentist or surgeon and have the operation performed without pain, though awake in every other way. A book has been written by Dr. Fahnestock, of Chicago, called "Statuvolism," in which the author gives expression to the same idea. He claims to be able to train his patients not to lose ordinary consciousness, but pain consciousness only. Dr. Tuckey heard from several sources that Christian Scientists could do the same thing; dentists had told him they came for extractions and had been offered gas, but their reply was, "We are Christian Scientists, and don't need it." And sometimes the operation was done without their showing any sign of pain. He agreed with the remark as to the difficulty of recognizing hypnotizable subjects. An

anæsthetist at a dental hospital said he became adept at estimating the suggestibility of patients, and used to tell students, as soon as a person came into the room, that he or she was susceptible, and an operation could be done in that case without gas. An empty bag, or one with only a trace of gas in it, was used to produce the full effect of suggestion. He agreed with what Dr. Ash said about the people who were the best subjects for hypnotism. That day he had hypnotized several people, and his best subject was a burly policeman, aged 40, who went into a profound somnambulistic state almost at once. That bore out Dr. Wingfield's experience, who found his best subjects at Cambridge were healthy undergraduates, not degenerate or hysterical people. If chloroform had not been discovered, hypnotism would have had a future as a general anæsthetic; but the advent of chloroform and the ease and safety with which it could be used in most cases rendered the tedious and uncertain methods of hypnotism as an anæsthetic agent unnecessary. Hypnotism would, however, be found very useful to quiet the nerves and lessen dread before an operation, and to minimize and counteract shock after operation.

Dr. NATHAN said he had practised hypnotism more or less for some years, and his experience had been largely the same as the author's. The proportion of hypnotizable people among healthy young men, and especially soldiers, was great; but as they were in good health hypnotism in their case was not of much use. Among patients the number hypnotizable was small. For the purpose of a small demonstration at St. George's Hospital he went to the National Institution for the Employment of Reserved Soldiers and got men in batches. The small sum he was paying them might be called suspicious, but it surely would not influence the result, especially as he put them to the extreme test of driving in a sterilized pin between the finger and the nail. All the men went off at the first time. When a man came to him to be hypnotized so that he might have a tooth out, it was scarcely ever successful. Private patients might be divided into two classes: first, highly neurotic individuals who objected to ordinary anæsthetics and applied to the hypnotist as a last resort, and, secondly, those who treated it as a joke. In neither class was hypnotism of any use. The people one wished most to hypnotize were the least satisfactory. The most successful cases in hospital dental practice were men between 20 and 35 years of age: he did not think he was ever successful in the out-patient department in hypnotizing a woman for the first time so that she might have a tooth out. When he first started he had the usual difficulty in ascertaining the depth of anæsthesia and what stage the patient was in. He used to prick the gum with a pin after suggestion of anæsthesia, and if there was no reaction he asked the dental surgeon to proceed. The successful cases he had had were ordinary non-neurotic people. One servant girl, aged 23, had one upper molar and three stumps extracted satisfactorily, without any evidence of pain. Another girl was being treated for hysterical blindness, and came to the hospital with a badly swollen face and much swelling under the jaw from a large molar abscess. It was suggested that, as she had been hypnotized

a few times, the tooth could be taken out. The house surgeon took it out, the patient feeling no pain. He thought that if the patient would consent, and was a favourable subject, a fairly long operation could be done under hypnotism. The first shock of cutting through the skin would be enough to lessen any pain afterwards. It was well known that a man who had been wounded twice or three times in a battle would say he felt the first bullet, but was hardly conscious of the second or third.

Dr. WINGFIELD said the question of rendering people anæsthetic by hypnotism appeared to be rather out of the range of practical politics. Twenty years ago he used it occasionally, but had now practically given it up; he had used it for amputating a finger and for dental cases; also when at Winchester he had used it in confinement cases and found it useful. In most of the cases, as the person had not been hypnotized before, it was doubtful whether it would succeed. In the case of removal of the finger, the man had been hypnotized before, and he felt no pain; in fact, they conversed while it was being done. It was a mistake to suppose that anæsthesia could only be induced in the deep stage. In about a hundred cases at Cambridge anæsthesia had been produced in persons who had never been sent to sleep and in whom no deep hypnosis had been induced. In treating the limb of a man who could not be got under deeply, he almost always found that before the anæsthesia came on the limb became rigid. So in the waking stage the normal condition was that if the patient was made anæsthetic there was first rigidity and then anæsthesia. The patient might be profoundly anæsthetic, and at the same time intensely hyperæsthetic. A man could, by downward strokes over his arm, be put into a condition in which he did not feel a stroke or cut, but if stroked upwards, even lightly with cotton wool, he felt it. Therefore he did not agree that it was due to the fact that the attention was concentrated on something else. He believed it was far more complex. In such cases the person had to perceive the sensation with some part of his mind, and he had to decide whether he was to feel or not to feel, and having decided, he acted accordingly, rejecting one and feeling the other. In light anæsthesia, if a warm weight were placed on the hand, the area covered by that weight would become sensitive, the rest remaining anæsthetic. At one stage of chloroform anæsthesia, immediately after the excited stage, the patient became susceptible to suggestion. Suggestion given at that stage that the man should go deeply under seemed to shorten the process a good deal. At the Royal Free Hospital he anæsthetized, or rather pretended to, a patient for a tooth extraction. But he found there was no gas left. He therefore used the empty gas bag and the teeth were taken out without any pain.

The PRESIDENT (Dr. W. J. McCardie) said he hoped the outcome of the discussion would be some help to members in their work as anæsthetists, though naturally he did not hope that general anæsthesia by inhalation would be replaced; but there might be some hypnotic means of more safely deepening anæsthesia, and perhaps lessening after-effects. Could hypnotism be more

used to lessen the fear of anæsthesia and operation? If Crile's suggestion in regard to exophthalmic goitre could be generally carried out and the patient seen for a week beforehand, each day, to get used to the administrator and inhalation mask, with only eau de Cologne sprinkled on, work would be greatly helped, as he took it that Crile's method was that of suggestion. It was important that, where possible, the patient should be seen beforehand and assured that he or she would not feel pain, and that he would go off to sleep quickly and quietly. If suggestion could be used to stop the after-effects of anæsthesia and produce after-sleep it would be a great help. He did not know whether patients would be more susceptible to hypnotism, or less, during recovery from ordinary anæsthesia. Some operators said there was no shock and very little bleeding in surgical work under hypnotism. He would be glad to know whether in cases of large operations under hypnosis such a thing was possible. He believed Dr. Aldrich made that assertion. Dr. Munro had recently used suggestion operations with as little as ℥xxx of chloroform for surgical operations. Recamier had tried the combination of suggestion with chloroform (twenty to forty drops) in forty operations with a large measure of success. How could the depth of surgical anæsthesia produced by hypnosis be ascertained? Anæsthetists had indications in the eyes and other parts of the body. In the case of hypnotic anæsthesia for gall-stone operation, he asked what would be the state of the corneal reflexes in full surgical anæsthesia with muscular relaxation. He would like to know what, if any, were the after-effects of hypnosis for surgical operations, and what was the measure of the blood-pressure. He was told that by staring at a bright object, as in Braid's method of hypnosis, the excitement caused the pulse and respiration to be quickened, but that if suggestion was made quietly there would be no change in either respiration or circulation. For general surgery Bernheim stated that hypnotic suggestion was of very little use, but he used it in connexion with chloroform before pouring the chloroform on the mask, suggesting that the patient was going to sleep quietly, which he sometimes did with but very little chloroform. He would be glad to know whether the general anæsthesia could be lightened by hypnotic means. By using drugs like scopolamine, morphia and chloral bromide before anæsthesia, the anæsthesia could be lightened, and if hypnotism could be used instead of those drugs the patient's state would possibly be better afterwards. Was it possible to get better results by hypnosis or suggestion in patients whose minds were dulled by acute disease? He would be glad to know how alcoholics bore suggestion, and how the method would act for gall-stone operation. Could a deep anæsthesia produced by suggestion be as good as general anæsthesia for operating on gall-stones? Also he would like to know whether there was any difference in the susceptibility of white and black races. Esdaile had obtained wonderful results in India with hypnotism, where the natives were said to practise self-suggestion, yet in Europe such constant results had not been recorded.

Dr. EDWIN ASH, in reply, pointed out that there was a great distinction between suggestion and hypnotism, which were not necessarily connected. It was because in practice hypnotism was frequently induced by suggestion that they were considered to be the same. Suggestion could be a great aid to anæsthetists, and having had considerable experience of anæsthetics, he was particularly interested in this connexion. He agreed that suggestion had a great field before it in practical anæsthetics, and could be used more extensively than it was at present. He thought suggestion in the waking state, or in the hypnoidal state of Sidis, which was easy to obtain, was especially useful in giving pre-anæsthetic suggestion. In that state one did all that was possible to abolish the fear of the anæsthetic before the operation. Usually the last person seen by the patient before the operation was the stranger who placed the mask over his face. Naturally the patient felt he would have liked to have seen that man beforehand, for if so, and if he could have talked to him, he would have had much more confidence. Crile's work was based upon that idea. After ordinary anæsthesia, certain after-effects on the patient were toxic, and no one could expect suggestion to deal with what was due to acidæmia or other poisoning. But where there was reflex irritation or sleeplessness of nervous origin, suggestion would do good. So far, there had not been anything like the same amount of work done on hypnotism or suggestion as anæsthetics as on drug anæsthesia. There would probably be no more shock after an operation following hypnosis than after drug anæsthesia. The idea of there being less bleeding was absurd, and he thought it had got into the books because of the statements of some quack performers in the past, who pinched up the skin before inserting a pin into it, when obviously no blood could come, as there was none in the part. In his investigation he had checked the knowledge of many quacks, and found most of them knew but little about the subject. The more susceptible the patient was to suggestion, the less chloroform he would want. He knew of no definite effects on the reflexes, such as one saw with chloroform. In his own cases he had judged by the general characteristics of the condition induced. It was knowledge based on experience, which could not be communicated to others. He agreed that when suggestion was used to obtain a deep hypnotic state the heart was quiet, and there was no effect on the blood-pressure; but where there was eye-strain or excitement the blood-pressure was increased. It would be a long time before hypnosis could be used for urgent operations. Alcoholic subjects went off quickly and yielded excellent results in the hypnotic state. He did not think the character of the abdominal operation mattered much if the patient was a good subject. He did not think there was any difference in the susceptibility of light and dark people. But Oriental races appeared to be very susceptible to suggestion, also negro races. In the West Indies, he understood, there was a law prohibiting certain practices in which suggestion played a large part. A friend of his had inquired into the Obeah system there, and informed him there was a law to prevent that practice. It was said that if a negro did something offensive and the "Obeah-man" was put on to him, the offender being told of this, the

unfortunate man found that that very knowledge was sufficient to take the vitality out of him, and often the victims went away and died of sheer inanition; they thought they were going to die, and they did. That seemed to show there was a difference in the races in regard to the degree of suggestibility. He did not think anything depended on the hypnotizer, except that he must show the patient he had confidence in himself, and to show it he must possess it. In his own case, when he first made use of hypnotism, he was haunted by the thought that he would be in an absurd predicament if after calmly telling the patient he or she would go to sleep, they did nothing of the kind. But confidence came with experience. Some people were so nervous and lacking in confidence that they would never be able to send people to sleep in their lives. People on the Continent, especially Italians and French, were more susceptible than the English, and no doubt the better results obtained in those countries were due to that fact.

# Section of Anæsthetics.

February 3, 1911.

Dr. W. J. McCardie, President of the Section, in the Chair.

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## A Death due to Inspiration of Gummatous Material from a Gumma which had burst during Chloroform Anæsthesia.

By W. J. McCardie, M.B.

Many instances have been recorded of the drowning of patients during anæsthesia by inspiration of fluid stomach-contents which have regurgitated into the mouth and been inspired into the air-passages. This case illustrates the rare condition in which the suffocating material originated in the deeper air-passages themselves.

The patient was a man, aged 43, who suffered from ulcer of the scrotum with hernia of the testis, and Mr. Gamgee, the surgeon, proposed to excise the parts. An anæsthetic was administered in the General Hospital, Birmingham, on March 26, 1909, by a house surgeon. The patient had much bronchitis, and his lung condition altogether was such that Mr. Gamgee was going to ask me, if I had to give the anæsthetic, to administer chloroform, but the operation was postponed from my morning to another, and so I escaped having record of another death under chloroform.

Pure chloroform was administered on a Schimmelbusch's mask. The patient was apparently very nervous, and struggled slightly during administration. He was asked to count slowly during induction of anæsthesia, and was anæsthetized without special trouble. His reflexes were lively and pupils of normal size when he was wheeled into the theatre and lifted on to the table. Then it was noticed that his breathing was embarrassed, and that his face was becoming blue; the administration was stopped, the cyanosis increased, although the pupils were still of normal size, lid reflexes active, and the pulse easily felt (108). Respiration soon stopped. Artificial respiration was started and

persisted in for some time. After a short time the patient took two long deep gasps and then ceased again to breathe. Tracheotomy was done, and artificial respiration continued with the addition of oxygen, without success.

Post mortem: A broken-down gumma was found in and around the bifurcation of the trachea. The gumma had probably burst during anæsthesia. Much muco-pus was found blocking all the main bronchi on both sides. Several smaller ulcers were found in the bronchi, and gummata were found in the liver. The lungs showed evidence of much bronchitis. The pathologist considered that death was due to rupture of the gumma and inspiration of gummatous material into the lungs. The gummatous material, being entangled in the bronchitic muco-pus, would have little chance of being ejected during anæsthesia.

Possibly the anæsthetic, by preventing coughing, prevented the recovery of the patient.

## DISCUSSION.

Dr. G. A. H. BARTON said that in his judgment it was a pity that an operation should have taken place in this case. It did not appear to have been one of extreme urgency, and, having regard to the patient's bronchitis, he thought the operation should have been at least postponed.

Mr. C. CARTER BRAINE asked whether this had been regarded as a death from chloroform. He was of opinion that it was not in that category. It was very probable that the gumma burst as a result of simply moving the patient from the anæsthetic room and lifting him on to the operating table. He also wished to know the position of the patient when artificial respiration was being carried out. Granted that there was fluid in the trachea, it seemed almost useless to perform artificial respiration with the patient in the orthodox position on the back. The only chance in such a case was to turn the patient upon his side, and to keep him in that position during the whole of the time that the artificial respiration was being performed, with the idea that the upper lung might clear itself of the foreign material which had been inhaled.

The PRESIDENT (Dr. McCardie), in reply, said that he did not personally see the patient, but he gathered that the operation was one of some urgency. The ulceration was causing the patient a good deal of pain. As to Mr. Braine's remark upon the inadvisability of recognizing this as a death from chloroform, he (Dr. McCardie) had described it as a death *during* chloroform anæsthesia. He did not altogether attribute the death to the chloroform, but had the gumma burst during consciousness its contents might have been expelled by coughing. A curious feature of the case was that he could not gather from the administrator that the patient had coughed at all. The irritation caused by the bursting of the gumma might have been supposed to lead to a certain amount of

coughing during light anæsthesia. As to the suggestion by Mr. Braine of artificial respiration in the side or prone posture, he did not know how it was carried out in this case. The condition, obviously, was a rare one, but had it been recognized, artificial respiration would naturally have been done in the way that Mr. Braine had proposed.

## Nasal Reflex during Anæsthesia.

By J. BLUMFELD, M.D.

MY object in directing the attention of the Section to reflex effects from the nasal mucous membrane is not to try to demonstrate any new or unusual phenomenon from the case on which my remarks are based, but in order to see whether the experience of others confirms my own in finding stimulations in this part a very ready source of reflex effects, and to elicit from fellow-members the best means of avoiding such effects, and their opinion as to their exact causation. That the nasal mucous membrane is very freely supplied with nerve-endings, and that it is therefore a highly sensitive part from which reflexes can easily be evoked, is an obvious physiological truth, and I hope to hear from those who are accustomed to operating upon the nose with the help of local anæsthetics their experience as regards the frequency with which varying reflex phenomena are apt to arise under these conditions. The use of general anæsthesia, of course, diminishes the frequency with which such phenomena follow upon nasal stimulation; for instance, repeated sneezing, which is a common result in the non-anæsthetized, is rare during general anæsthesia, though I have met with it, and found it occasion considerable inconvenience by interrupting the operator. The phenomenon, however, which my case illustrates, and which is not uncommon in my experience, is that of reflex circulatory depression, and the questions I would like to put categorically to my colleagues are briefly these:—

(1) What part does the anæsthetic play when pulse failure follows immediately upon stimulation of the nasal mucous membrane in the anæsthetized subject, and does the position of the patient play a part?

(2) Have any of them ever witnessed this phenomenon in a patient who was under the influence of ether or of nitrous oxide?

(3) If they have seen this temporary pulse failure, was the corneal reflex present or absent?

(4) Was the stimulus one associated with the injection of any particular drug?

These seem to me the leading questions which naturally arise from such a case as the following:—

J. D., a youth, aged 17, rather tall and narrow-chested, but with a good medical history and no other organic defect to be detected, was to be operated on for a well-marked deviation of the nasal septum. A mixture of 2 vols. chloroform to 3 vols. ether was administered from a drop-bottle upon a Schimmelbusch's mask on which was stretched one layer of domette. A small prop was inserted between the teeth on the left side of the mouth. There was no observable excitement stage, and after about seven minutes he was regarded as being ready for operation. At this time the corneal reflex was easily elicited; the breathing was slightly stertorous, and the colour good. At the operator's request the head and shoulders were now raised into almost a sitting position. This produced no alteration in the patient's aspect, but he gave two or three gentle coughs. So the anæsthetic was continued for about another minute before the mask was removed. When this was done the patient's condition was apparently perfectly satisfactory—an easily obtained corneal reflex, colour good, respirations regular and fairly vigorous. The mask was now removed, and no anæsthetic given, while the operator made an injection of adrenalin into the mucous membrane of the nasal septum. Almost at the same moment the patient's face became extremely pale, and his breathing so feeble that I at once rubbed his face and lips with the idea of stimulating it. There was no immediate effect, so his head and shoulders were at once lowered to the horizontal, and gentle compressions made upon his chest. His pupils at this moment were large and his corneæ insensitive. I did not stop to feel for his pulse. After a few squeezes of his chest the breathing became more vigorous, and in a minute or so his condition was again apparently normal. The former position was gradually reassumed, chloroform given through a tube at the side of the mouth from a Junker's inhaler, and the operation, which took about half an hour, finished without anything unusual occurring.

There was, therefore, in this case the sudden appearance of symptoms of severe shock arising almost simultaneously with the nasal injection in a subject whose general condition and whose condition *qua* anæsthesia were at the moment perfectly satisfactory. On what did the shock depend? The amount of the injection was six drops of a 1 in 4,000 solution.

## DISCUSSION.

Mr. A. D. FLEMMING said that in his opinion much depended upon the strength of the adrenalin solution employed. He had seen faintness occur after the injection of adrenalin in strengths such as were used in Dr. Blumfeld's case; but since using a weaker solution, such as 1 in 50,000 or 1 in 100,000, he had not seen that faintness occur. From cases which tallied with Dr. Blumfeld's, he thought that probably the strength of the solution was the important factor. He could quote a good many cases in which injection had been followed by faintness when a strength of 1 in 1,000, or even 1 in 5,000, was used. He recalled a case in which an elderly lady was operated on for appendicitis. She was in a bad condition, with a pulse-rate of 140 and a condition of general peritonitis. The operation was performed rapidly, and at its conclusion she was put back to bed, her pulse-rate then being 180. The surgeon in charge asked him if he had adrenalin in his bag, and he replied that he had it but had refrained from using it on his own responsibility. They injected 1 ♏ of adrenalin solution (1 in 1,000) and the patient was dead within a minute or two. It might have been a coincidence, but the pulse certainly seemed to improve for a few seconds after the injection, and then it suddenly failed.

Mr. C. CARTER BRAINE stated that he knew of a case in which the tonsils were being removed under chloroform when the surgeon thought it advisable to inject a little adrenalin into each tonsil immediately before removal. The result was that the patient immediately collapsed, and died in a very few minutes.

Mr. L. K. THOMAS said that he had had a case similar to that described by Dr. Blumfeld. He put the special effect down to the adrenalin. The patient recovered.

Dr. PROBYN-WILLIAMS asked whether the failure occurred soon after the alteration to the sitting posture. The effect of the change in position of the patient from the recumbent to a sitting posture was another possible factor which Dr. Blumfeld might not have reckoned. Two or three years before he (Dr. Probyn-Williams) was asked to administer chloroform to a very powerfully built man, some 6 ft. 3 in. in height, an officer in the Guards. On listening to his heart there was nothing abnormal to be heard, and accordingly he administered the desired anæsthetic. When the patient was anæsthetized his head and shoulders were raised, but immediately upon this being done his heart failed to such an extent that he had to be put back into the recumbent posture. After half a minute or so he recovered, and the experiment of raising him was again tried, with the same unfavourable result. Ultimately he asked that the operation should be performed with the patient lying on his back, and, after some demur, the surgeon did this. He found out afterwards that the officer had actually been invalided from the Guards on account of his heart weakness, and had undergone treatment for this by Schott, at Nauheim; but nothing abnormal was detected in the ordinary examination.

Mr. H. BELLAMY GARDNER, alluding to the case which Mr. Carter Braine had mentioned, said that the surgeon in the case had been a pathologist to a hospital, and at the necropsy himself decided it was an adrenalin death. The speaker had not known that the case had not been recorded in the Section, but details could be obtained. If adrenalin was laid against the mucous membrane of the nose, he was of opinion that a strength of 1 in 1,000, with 10 per cent. of cocaine or eucaine mixed in equal proportions, was the best. When this was done he did not find any depression in cases of resection of the nasal septum unless the base or crest of the nasal septum were hammered upon by the surgeon. In the mastoid operation the process of hammering definitely produced shock, and he generally tried to anticipate that by lightening the anæsthesia to some extent. If the stage of the anæsthesia was not carried beyond the retention of a weakly active corneal reflex he did not think the sitting position was dangerous. He had not noticed that there was any period of depression which he could ascribe to the influence of gravity. Certainly the patient was paler when sitting up than when lying down, but as that factor was present from the beginning one could adjust the chloroform anæsthesia to the required depth. If, however, the patient was in the supine position at the beginning of the administration, and was subsequently raised to the sitting position, there was likely to be depression as a result. He would rather by far have the patient sitting up—bolt upright—from the beginning. In Dr. Blumfeld's case the symptoms might be due to the injection as opposed to the painting or laying of adrenalin against the mucous membrane.

Mr. HAROLD BARWELL said that he was the surgeon in the particular case brought forward by Dr. Blumfeld. There were many points of considerable interest about the cases of shock which followed the injection of adrenalin. He could answer for Dr. Blumfeld that the shock did not occur immediately upon raising the patient. There was an intervening period of half a minute or one minute while towels and so forth were being arranged. He thought that one must accept the general opinion that the chief factor in the shock was the injection of the drug, and he agreed also that the strength of the adrenalin was too great on this occasion; but, nevertheless, a dose of 5 ♏ of 1 in 1,000 adrenalin was frequently injected in other conditions, such as asthma cases, and apparently without any ill-effect. The depressing effect of the drug appeared to be smaller in conscious than in chloroformed patients. Most observers would agree that there were at any rate two factors to be taken into account—namely, the injection of adrenalin and the anæsthesia. A non-anæsthetized patient might turn faint on being examined with a speculum before any drug had been administered, and how much shock was due to nervousness, and how much to the drug, one could not say in any particular case; but he had never seen any marked shock following upon the injections in conscious patients. He had also never seen shock when anæsthesia had been induced with ether up to the moment of injection. If they began with ether, and after injection went on with chloroform, perhaps it would be a safer

procedure. The injection of adrenalin raised an important point because, in difficult cases of resection of the septum, there was nothing to compare with injection of adrenalin for diminishing the bleeding. No amount of surface application would give such a satisfactory effect from the surgeon's point of view. Moreover, there appeared to be a definite idiosyncrasy among certain patients. Exactly the same routine might be used, and on making the injection at an early stage of the chloroform anæsthesia, ninety-nine out of a hundred cases would show no circulatory or respiratory change whatever, but on rare occasions a state of shock in an alarming degree became evident.

Dr. F. W. HEWITT thought that the Section was to be congratulated very much upon the discussion. When they had the remarks of a candid surgeon such as Mr. Barwell, and a candid anæsthetist such as Dr. Blumfeld, they were getting at the bedrock of these difficulties. From the title of Dr. Blumfeld's paper, he rather hoped he was going to say something more specifically about reflex effects. Dr. Blumfeld did not regard the cases he had described as having a reflex causation. They were face to face with two conditions. In the first place, they had to consider the reflex cardio-inhibitory and vasomotor effects of local stimuli, and in the second place generalized and toxic effects of injected substances. It would be interesting if they could dissociate these for a time, and if some of the members of the Section would say whether they had actually seen cardio-inhibitory or vasomotor effects as a result of reflex action following from the definite stimulation of the nasal mucous membrane. He had over and over again watched for these reflex effects in nasal and throat operations when the electric cautery was being applied to patients under chloroform. One would expect that, if a stimulus were able to produce a definite circulatory reflex effect, that provoked by the application of the cautery would come into operation very rapidly indeed. But he had never seen it—indeed, he had never come across any indication of this kind at all. The effects that had often been ascribed to these stimuli were probably respiratory effects, and circulatory phenomena supervening upon these had been looked upon as primary. They were all aware of the great diversity of reflex respiratory effects, and he ventured to think that it was this interpretation that supplied the key to many of the supposed primary cardio-inhibitory and vasomotor phenomena. Mr. Barwell had suggested the causation of the general toxic phenomena that had been described as referable to adrenalin, and his description had taught them that they had to consider the already low blood-pressure produced by chloroform, and possibly assisted by the posture of the patient. When, in the presence of that abnormally low blood-pressure, they introduced adrenalin, which had a complicated action upon the vasomotor system, they were likely to get such effects as had been described in the paper. In the case of patients under ether, there was much less risk of these effects. The outcome of the discussion would be to make surgeons careful in injecting adrenalin, whilst anæsthetists might hold a watching brief in such cases. One or two deaths had actually been recorded of this character. From that evening they would have much more light to guide them in such cases.

Mr. RICHARD GILL asked Dr. Blumfeld whether, in these cases, it had ever occurred to him to interrupt the administration of chloroform during the early progress of the absorption of the drug which was injected into the nasal mucous membrane. He fancied that if he were to apply this little variation in his subsequent cases, and were to collect the results of his experience, and bring them before the Section on another occasion, they would hear a very favourable account of this modification in the procedure. The administration of the chloroform might be arrested for, perhaps, five minutes, and then resumed, when the action of the adrenalin, or cocaine, or eucaine, or whatever drug was employed, was declining.

Mr. HARVEY HILLIARD said that his experience had led him to rather a different conclusion from that which had been expressed by most of the previous speakers. In his earlier years of practice, when local anæsthetics with adrenalin were not commonly used in conjunction with general anæsthesia, he had on more than one occasion seen cardio-inhibition as apparently the result of stimulation of the nasal mucous membrane, since the nerve-terminations had not fully been rendered incapable of transmitting afferent impulses. But when, in later years, he was fortunate enough to be associated in work on the nose with a surgeon who made it a rule to plug the nares with gauze saturated with a local anæsthetic and adrenalin, before the administration of the general anæsthetic was begun, he had never observed sudden reflex cardiac inhibition. At the hospital he had frequently been told by clinical assistants that they had had experience of the cardiac depression described by Dr. Blumfeld during nasal operations under ether, and for that reason they rather dreaded these operations. When local anæsthesia, in addition to general anæsthesia, was not used, he had observed signs of cardiac depression when in the course of an operation serious damage to the tissues was done, such as breaking away portions of the interior of the nose with forceps. He recalled a case in which a large malignant growth was removed. It was a very severe operation, the superior maxillary bone being reflected in order to open up the site of the operation, as the tumour was growing from the base of the skull, and occluding the nose and nasopharynx. He was therefore on the look out for reflex cardio-inhibition, as he well remembered Dr. Brodie's experiments, which had been undertaken to show which situations in the body were most prone to produce reflex shock as the result of damage or stimulation. If he remembered rightly, Dr. Brodie proved that, of all places, the nose and base of the skull were the most sensitive in this respect, stimulation of the interior of the nose causing more cardiac inhibition than crushing the testicle in monkeys. He had, therefore, previously agreed with the surgeon that at a certain point in the operation the administration of the anæsthetic should be discontinued, with a view to minimizing shock. The patient in consequence was very lightly under the anæsthetic, and had a brisk corneal reflex when the mass of growth was pulled away. As a result of this traumatism, however, his condition became most serious, and he had to resort to restoratives. But he believed that this reflex inhibition was unavoidable in any case, and furthermore, that if the

patient had been actually under the influence of chloroform, and to the depressing action of this drug upon the heart had been added the extra reflex shock produced by the forcible removal of the growth, he did not think the patient could have recovered.

The PRESIDENT (Dr. McCardie) said that, as one who himself had had a septum removed under local anæsthesia, he could speak sympathetically as to the action of the anæsthetic in such cases. In his own case the anæsthetic had a stimulant effect, which remained upon him until he reached home. Why, in the case of the conscious patient, the effect should be stimulant, and in the moderately anæsthetized patient depressant, he did not know. He had several times seen during moderately deep anæsthesia the patient become very pallid, and once very near to death, and his opinion agreed with that of a surgeon who had performed about 600 of such operations, namely, that the effect of the adrenalin was the chief one in bringing about these circulatory disturbances. This surgeon insisted upon having only very light anæsthesia during and for some time after the injection. One was very liable with chloroform to get a severe form of circulatory depression, and the surgeon he quoted believed that this depression was not due to reflex stimulation *per se* of the nasal mucous membrane, but to the effect of the injection and absorption of adrenalin, which was dangerous during even moderately deep chloroform anæsthesia. He (the President) had commenced with ether in some of these cases, and had then seen no dangerous symptoms.

Dr. BLUMFELD, in reply, said that there were one or two points upon which he did not fully agree with the speakers in the discussion. Personally, he had not realized that such a heavy list of indictments might be brought against adrenalin, or he would, perhaps, have altered the title of his paper. He was still not quite convinced, and he thought the extreme rapidity with which the effects followed upon the injection rendered it unlikely that the patient's condition was solely due to what Dr. Hewitt had called the generalized effect of the adrenalin. He thought that Mr. Gill had not quite realized what he (Dr. Blumfeld) had done in this case. No anæsthetic was being administered, and the patient's anæsthesia was light at the moment of collapse. In that connexion came in the question which Mr. Bellamy Gardner had raised with regard to position. He thought that in light anæsthesia the position was not a matter of great importance, and he agreed that the sitting posture was as good as the supine, provided that—as he took it Mr. Bellamy Gardner intended—the sitting posture was not that of a person sitting in a chair with his feet on the ground, but one in which the lower part of the body remained horizontal. As to the likelihood of the effect being a reflex one, he pointed out that it would be remarkable if they did not get reflex effects from these nasal operations. A priori, one would expect them on tampering with an extremely sensitive part like the nasal mucous membrane. He was much obliged to all those who had offered remarks, and thought there were no questions put to him remaining to be answered.

## Anæsthesia in Post-pharyngeal Abscess.

By Richard Gill, F.R.C.S.

The cases of which I am about to give you a short description came under my notice a few years ago, but I think they may be of some interest, if not at the present, at any rate in the future.

The case which gives the title to my paper was that of a child, aged about 3, who was supposed to be suffering from adenoids. The operation was fixed; I administered chloroform, and the child was quiet. Its state, however, could not be called pure chloroform anæsthesia because, to begin with, the child, if not suffering from dyspnœa, had considerable difficulty with its breathing. But I succeeded in getting the child quiet, and also, as in the case just described by our President, succeeded in achieving the contracted pupil. At that particular stage, therefore, I was quite sure that there was no excess of chloroform circulating in the blood. When the mouth was opened a mass was to be seen pushing the soft palate before it, and as the mouth was more widely opened further obstruction to the breathing followed. In fact, if I had opened the mouth to its widest extent I could have arrested the flow of the air into the lungs entirely. The mouth was partially opened, the child breathing badly under these conditions. A knife was passed into the mouth, and a small incision made in the mass. Immediately there was an escape of what I may, under the circumstances, call an appalling amount of matter. And it was so rapidly discharged that the whole of the mouth and the nostrils were filled with pus. Under these circumstances, it can readily be imagined that the state of the little patient was particularly grave, because the entrance to the respiratory way was completely blocked, and would remain so until all the pus had escaped. Anticipating the future, I grasped the child's leg and suspended him, head downwards, so as to allow the pus to pass freely out by gravity. In the course of this procedure the little patient's face became more dusky than it had been previously. Still, in such a case it would have been dangerous to have passed the finger into the mouth, pressed the tongue forward, and opened up the airway. During this short interval every effort was made, and made very deftly, to remove by means of small swabs the matter in the mouth and nasopharynx. At the end of a few seconds—we are well aware how easy it is to exaggerate in the matter of time, a few seconds under such circumstances seeming like minutes—as

soon as I judged that all the pus had been removed which could be removed, the child still being in the same position, his head now supported gently by the nurse, I placed my finger in the mouth—it had been between the teeth all the time, of course, so as to allow of the passage of the pus—until it touched the epiglottis, then pressed the base of the tongue to the floor of the mouth, and gently pulled forward the patient's tongue and jaw. It was very important to preclude the possibility, when the child took an inspiration, of any fluid getting into the air-way. That is the great danger in these cases. But in this case, so effectually had the sponging been done that when the tongue was gently displaced forwards, respiration and the entry of air into the air-way, which had been interrupted for a period of ten or fifteen seconds, were established, and the child fairly rapidly recovered its natural condition. I should like to have the honour of pointing out to this Section the necessity in such an instance of getting the patient into a particular position. In treating this complication, which may turn out to be a very serious one, you will perceive at once the importance—I might almost say the fundamental importance—of rapidity. It is not an instance in which one can delay, or in which one can afford to stand by and wait for the pus to come out. It will come out, of course, but it must be made to come out as quickly as possible, and to accomplish this result two things are necessary. In the first place, the position has to be considered, so that the action of gravity may be called into play, and, in the second place, a great deal depends upon the dexterity of the assistant who attends to the sponging out of the mouth.

I may relate another instance in which position came into prominence and was practically the chief factor in the recovery of the patient. The patient was a boy, aged 15, who had had something the matter with his lungs—his pleuræ in particular, for some years. He had already undergone three or four operations, and I had given him an anæsthetic at least once before. He had some collection of matter in the right chest, and it was somewhat difficult to locate it. On the occasion of this operation the attempt was made to find the site of the matter, and in the course of the operation, whether due to the operation itself or to the accidental opening of an artery, there was a sudden and very considerable hæmorrhage from the nose and mouth, the blood practically pouring out. The patient's complexion, which previously was of his natural colour, became dusky, his pulse slower, and all movement of his chest disappeared. Fortunately, the pupil remained normal. Immediately the blood appeared at the nose and mouth, without a moment's delay,

the patient's body was placed over the edge of the table, and one of my clerks standing by at once received the head in his hands and held it in such a way as to allow of no undue tension upon the muscles, while at the same time ensuring that there should be nothing to prevent a direct outlet for the blood. The hæmorrhage continued for some seconds until such time as the patient's complexion was almost black, and I am afraid that there were a good many standing by who thought that he would never recover. It was, indeed, a critical condition; however, the pulse of this boy never actually ceased. I kept my finger upon the pulse, and in this case, also, I did not interfere with the tongue until such time as I was convinced that the obstruction in the respiratory passage had ceased. As soon as the blood-flow had diminished—it may have been in thirty-five or forty seconds—the position of the patient remaining the same, I passed my finger in the mouth, displaced the base of the tongue forward, and then gently pressed the sides of the chest with my two elbows. In these cases it is not necessary to use a vigorous movement. If the walls of the chest are gently compressed so as to expel even a small quantity of air out of the respiratory passages, it is enough. The pressure is quickly removed, there is a natural rebound of the chest, and in that manner the contents of the air-way are changed, the quantity of oxygen is increased, and although the change has been limited to the upper passages, yet, by the law of diffusion, if the quantity of oxygen is increased in those passages, it follows that it is diffused in the lower bronchi, and so aëration is restored.

These two cases taken together emphasize the importance—I lay most stress upon this point—of position in these cases of hæmorrhage or pus in the mouth in surgical operations.

## DISCUSSION.

Mr. H. BELLAMY GARDNER said that no member of the Section would disagree in any way with the treatment indicated by Mr. Gill for such sudden emergencies. But noticing that the title of the paper was "Anæsthesia in Post-pharyngeal Abscess," he thought it furnished the opportunity to make a statement as to the decision he had arrived at with regard to cases of this nature. His decision was, in short, not to give a general anæsthetic at all. He had one severe case in a child aged 2, to whom he gave a little chloroform, and he found that all that it was necessary for the surgeon to do was merely to prick the abscess at the back of the throat. There was an immediate gush of pus, and the alarm which the whole case caused owing to the bulging of the abscess into the pharynx obstructing respiration, and the quantity of fluid

evacuated from it, was quite out of proportion to the seriousness of the operation pain. He asked himself whether the danger of the anæsthetic was at all worth the risk, the operation being of the most trifling character. The next case which required this operation at the hospital was of a very similar character, except that it was more advisable to make the incision in the side of the neck. The surgeon asked him to give an anæsthetic, but afterwards agreed with his recommendation that no anæsthetic should be given, the whole operation being over in about three seconds. He (Mr. Gardner) kept the mouth open and arranged for the discharge of the fluid, if it should burst into the mouth, in such a manner that it would not interfere with the patient's breathing. A mere prick was made in the side of the neck, and the operation was effected. It was not worth while in operations of such a trifling nature to risk the bursting of the abscess into the upper air-passages in anæsthesia. He had quite decided not to give an anæsthetic in such cases in future.

Dr. PROBYN-WILLIAMS congratulated Mr. Gill upon the prompt measures by which he had saved the life of the patient in each instance. But he thought that in the first case the child might have been placed head downwards before the incision into the abscess was made.

Mr. GILL, in reply, said that when he had to deal with the first of the two cases, he was in the unhappy position of having to do as he was directed. Nevertheless, the remark made by Mr. Bellamy Gardner was much to the point, and would apply to those cases which could be attacked from the side. But in a very young child, where accuracy in operation was a necessity and quietude of the patient essential, there was difficulty in operating while the patient remained conscious. Dr. Probyn-Williams's suggestion also was excellent, and could have been carried out in this case—namely, having rendered the patient quiet, to incline him so that the head and shoulders were low, and perform the operation in the inverted position. But there were some difficulties in this particular case. Both the surgeon and himself were called somewhat suddenly, and it was very difficult to make a diagnosis. If nine people had examined the case as it was examined just previously to the cut being made, perhaps five of them would have said that the mass was solid.

## Note on a Case of "Cheyne-Stokes" Respiration during Anæsthesia.

By CECIL HUGHES, M.B.

THE rhythmical type of breathing known as "Cheyne-Stokes" occurs in the later stages of various diseases of the brain, especially those involving an increase of intracranial pressure; in uræmia, arteriosclerosis, fatty degeneration of the heart, and some rarer conditions. Rhythmical variations in the strength of the respiratory movements

also occur during sleep, hibernation, chloral narcosis, &c., but they are not so definite as in the Cheyne-Stokes cases.

Among the theories put forward in explanation the following may be briefly mentioned. According to Traube, Cheyne-Stokes respiration is due to a diminution in irritability of the respiratory centre, which prevents it from responding to the normal physiological stimuli. When respiration stops, the blood becomes more and more venous, until finally it stimulates the respiratory centre, and breathing recommences. The blood now becomes aërated, the pathological stimulus to the centre is removed, and the patient again stops breathing. The repetition of this cycle of events produces the characteristic alternation of dyspnœa and apnœa. Filehne, from a comparison of the respiratory and blood-pressure curves in animals, suggested a *stimulation* of the vasomotor centre. He believed that the accumulation of carbon dioxide in the blood did not affect the respiratory centre readily, and that it is only after the venous blood has stimulated the vasomotor centre and so caused a constriction of the arteries leading to the brain that the respiratory centre is finally influenced by the small amount and poor quality of blood which it receives. The breathing then gradually deepens and the blood becomes better aerated. The vasomotor centre being no longer stimulated by venous blood, allows the arteries to dilate, and so a fresh supply of arterial blood to reach the respiratory centre. The latter is then no longer stimulated by an insufficient blood supply, and the animal stops breathing, thus completing the cycle. Rosenbach believed that an easily fatigued condition of the respiratory centre was the cause, and that it was not due to venous changes at all. Probably all cases are not of the same nature, or not accompanied by the same changes in blood-pressure. When due to increased cerebral pressure, it has been shown experimentally in animals that the arterial pressure periodically exceeds, and then falls below, the abnormally high cerebral pressure, owing to the occurrence of Traube-Hering blood-pressure waves. When the arterial blood-pressure exceeds the intracranial pressure, breathing takes place; when the intracranial pressure is the greater, breathing stops. According to Eyster this is probably the case in Cheyne-Stokes respiration in man, when increased intracranial pressure is present; but, when it occurs in cases of cardiac and renal disease it cannot be so, because dyspnœa is then preceded by a fall of blood-pressure.

In the case which suggested this communication, Cheyne-Stokes respiration was maintained throughout the administration of an anæs-

thetic. The patient was a man, aged 52, suffering from malignant disease of the larynx and upper end of the œsophagus. Tracheotomy had been performed a week previously to relieve respiration, and a tube inserted. The present operation was for gastrostomy. Anæsthesia was induced by chloroform dropped on to the lint placed over the tracheotomy opening. After two minutes, C.E. mixture was given instead of chloroform. In four minutes patient had small pupils, no conjunctival, but marked corneal, lid-reflex. There was no excitation, respiration was quiet, 16 to 18 per minute; pulse 68, regular and fairly good for patient's somewhat wasted condition. The abdomen had just been uncovered, preparatory to "cleaning up," when respiration stopped. The pupil was still contracted, and the corneal lid-reflex active, so one was not alarmed. In about thirty seconds respiration commenced again with a fairly deep and audible inspiration, and periods of apnœa and respiration alternated from then onwards. Usually five to ten breaths were taken, followed by a pause of twenty to thirty seconds, and, in a few instances, from forty to forty-five seconds. The breathing did not begin and end in shallow or almost silent efforts, as in the majority of cases of this type of respiration apart from anæsthesia, but were of good volume and quite audible, but more markedly so at the middle of each period. The patient continued to breathe in this manner throughout the operation, which altogether lasted for forty-five minutes. He was lightly under the whole time, never losing the corneal lid-reflex, and of good colour. The abdominal muscles were relaxed, and there was no straining. Twice he gave a short cough, due apparently to a little mucus at the back of the pharynx. On stopping the administration respiration became quieter, the pauses between the breathing periods shorter, and by the time he left the theatre respiration was regular again.

This case is of interest, not only on account of its comparative rarity under anæsthesia, especially in such a marked and persistent degree, but also in its bearing on the various theories that have been advanced. That it should occur under anæsthesia seems to negative the likelihood of a stimulation of the respiratory centre being the cause, at any rate for such a length of time as forty-five minutes.

## DISCUSSION.

Dr. G. A. H. BARTON said that he had himself seen at least half a dozen cases in which Cheyne-Stokes breathing took place during anæsthesia. It was a little alarming at first to see the patient's breathing stopping. In the case

reported there was a brisk corneal reflex and contracted pupil so that there was not much room for anxiety. But sometimes Cheyne-Stokes breathing came on when these happy symptoms were not present. It would be useful to inquire whether there were any other means of certainly recognizing Cheyne-Stokes breathing *ab initio*. All Dr. Barton's cases occurred during chloroform or C.E. anæsthesia.

The PRESIDENT said that he had looked up the notes of all his cases for many years past and he had found references to six cases of Cheyne-Stokes breathing. With one exception they all occurred in old men whose chests were rigid, and more or less emphysematous, and whose arteries were thickened and sometimes tortuous. The exception was a man, aged 38, who was suffering from a cerebral tumour. Hewitt said that Cheyne-Stokes breathing was seen chiefly in elderly subjects whose chests were bad, and rarely or never seen in cases where the anæsthetic administration was by the method of re-breathing. In the cases he (Dr. McCardie) noted chloroform, or a mixture of chloroform and ether, had been employed. Cheyne-Stokes breathing was due to a loss of controlling influences from upper nerve-centres. His half-dozen more or less typical cases were taken from records of 9,000 administrations for operations in general surgery. He had not seen Cheyne-Stokes respiration during ether or nitrous oxide anæsthesia.

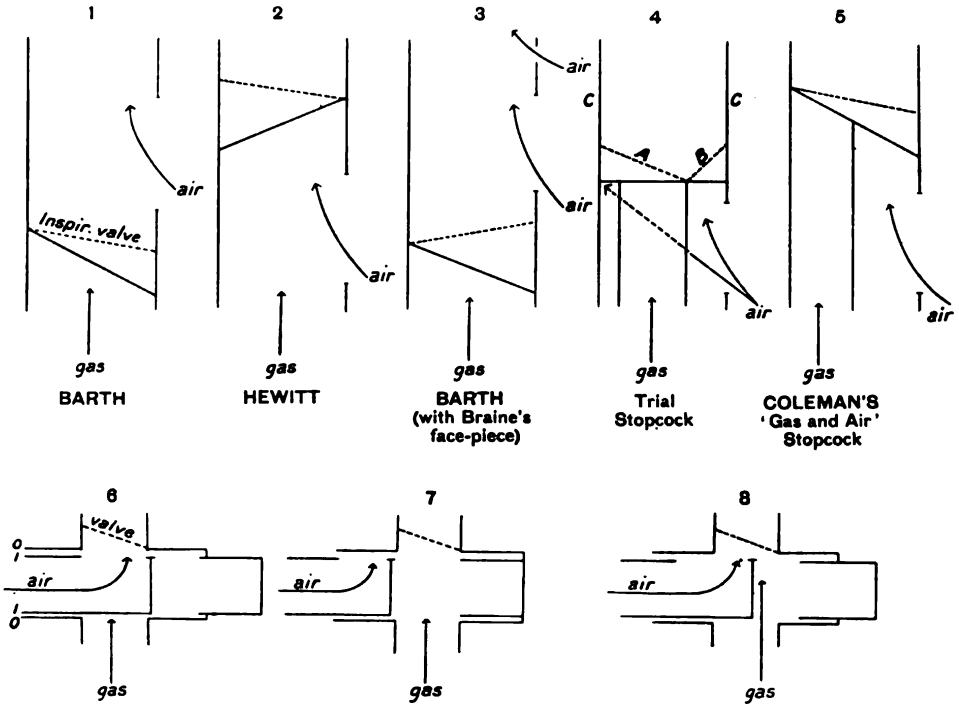
## A New Form of Stopcock for Gas and Air Administration.

By FRANK COLEMAN, M.R.C.S., L.D.S.

FOR some years I have been trying to devise a stopcock which will allow definite proportions of nitrous oxide and air to be admitted to the inhaler. So far, a satisfactory apparatus has not been designed by means of which nitrous oxide and air can be given in definite quantities and the mixture varied at will; although, for many years, oxygen has been given in this way with nitrous oxide and the method found to be a very valuable one. All present forms of stopcock fail for the reason that, while nitrous oxide is passing from the bag to the inhaler across the stopcock, the pressure in the latter must necessarily be greater than that of the atmosphere, so that the partial opening of the stopcock, while allowing little, if any, air to enter, permits the escape of the contained nitrous oxide. It is only when the nitrous oxide is entirely shut off that air can be constantly admitted to the inhaler.

The first attempt to carry out the principle of supplying definite proportions of air with the gas was made by Mr. Carter Braine[1] in

[1] *Journ. Brit. Dent. Assoc.*, 1895, xvi, p. 208.




NASAL STOPCOCK (COLEMAN).

(1) Barth's stopcock, showing slot for admission of air above the inspiratory valve.

(2) Hewitt's stopcock, showing slot for admission of air below the inspiratory valve.

(3) Barth's stopcock in conjunction with Carter Braine's face-piece, showing the small upper aperture for the admission of air after the main aperture is closed.

(4) Coleman's trial stopcock with celluloid sides, C, for observing the raising power of the valves, A, B, while under a full pressure of nitrous oxide from the bag. Valve A controls the admission of both gas and air into the inhaler, and as soon as it leaves its "seating" permits the escape of these gases into the inhaler, the air gaining admission first owing to the peripheral situation of its aperture. Valve B was seen to be raised with every inspiration, even under a full pressure of nitrous oxide. The raising of these valves during inspiration showed that air could be admitted to the inhaler by employing a valve (*see* A) covering the gas and air apertures, if the latter were made to correspond to the periphery of the valve, or by employing a separate valve (*see* B) for covering the air aperture if placed on the same plane as that of the nitrous oxide controlling valve.

(5) Coleman's "gas and air" stopcock, devised after experimenting with the trial stopcock (4).

(6, 7, 8) Showing the valve-seat applied to the nasal stopcock. This stopcock consists of an outer and inner cylinder, O and I; the latter is divided into two compartments, and, according to which compartment faces the inspiratory valve, air (6), gas (7), or both (8), are admitted to the inhaler. The inner cylinder, which is graduated and open at one end, can be projected beyond either end of the outer cylinder, and, according to the position in which it is set, gas, air, or a mixture of the two, can be delivered to the inhaler.

1895. Mr. Braine devised a face-piece bearing a perforated aperture surmounted by a movable metal cap: the perforations served for the purpose of admitting air into the face-piece, and could be opened or closed to the desired extent by revolving the metal cap. However, it was found that when the gas-bag was distended, little, if any, air entered these perforations, owing to the existing pressure of gas in the inhaler.

This difficulty I have partly overcome by employing a common valve for controlling the nitrous oxide and air entry to the stopcock. The aperture which admits these gases is divided into two equal parts, the central portion serving for the entrance of nitrous oxide and the peripheral portion for air. By such an arrangement the entry of nitrous oxide into the stopcock raises the common inspiratory valve, and so allows the simultaneous entry of air when the air-aperture is set for this purpose. Further, under whatever pressure the gas may be in the stopcock, air can always be admitted when desired.

This arrangement insures the entrance of air whenever the inspiratory valve is lifted by the nitrous oxide stream, as the peripheral portion of the valve, or that part corresponding to the air aperture, must be first raised before the central or inner portion can allow an exit for the nitrous oxide. The nitrous oxide is thus made to subserve in the function of admitting air into the inhaler and not to frustrate its entrance, as in the present forms of stopcock.

This principle of "valve-seat" involves two other advantages besides that of "regulating the mixture"—viz., the common inspiratory valve can be put into action and tested while the patient is breathing air alone, and the patient, in respiring through valves throughout the administration, experiences but little discomfort when nitrous oxide is substituted for air.

I have had this form of "valve-seat" in use for nearly three years, and for about a year have employed the same principle in connection with my nasal stopcock. Seeing that fairly definite proportions of air can be administered by this means, I have had this stopcock adapted to carry an oxygen-bag mount so that air or oxygen can be utilized as desired, a coarse and a fine adjustment serving for the delivery of these gases respectively.

The accompanying diagrams show the principle of the various forms of "valve-seat" employed with reference to the admission of gas and air into the inhaler.

# Section of Anæsthetics.

March 3, 1911.

Dr. W. J. McCardie, President of the Section, in the Chair.

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## The Use of Scopolamine, Morphine, Atropine, and similar Drugs by Hypodermic Injection before Inhalation Anæsthesia.

By Dudley W. Buxton, M.D.

The use of alkaloids and other drugs as adjuvants to inhalation of anæsthetics is no new departure in the practice of anæsthesia. Claude Bernard in 1869 studied experimentally the effects of morphine given before the inhalation of chloroform, and Nussbaum in 1873 adopted the practice of injecting morphine ($\frac{1}{6}$ gr. to $\frac{1}{2}$ gr.) antecedentally to administering chloroform, with the double object of lessening the amount of the general anæsthetic used and of obtaining more complete muscular relaxation and quieter respiration. Kappeler, who advocated the plan, asserted that under its use the heart's action was less depressed. Guibert de Saint-Brieuc advised its use in parturition, as his experience was favourable. On the other hand, Poncet, speaking from a wide experience during the Franco-Prussian War, deprecated the plan, since more severe after-effects, such as vomiting, were brought about by its employment. Indeed, Regnier regarded it as dangerous, since he held the morphine lessened the rate of elimination of the chloroform, and so placed the patient in danger during the period of recovery. Dastre, and more recently Sir Victor Horsley, have pointed out that morphine adds to the patient's risk through its tendency to narcotize the respiratory centre, and so increases the chance of the supervention of asphyxia. Demarquay, while admitting these dangers, emphasized that they were really a question of dosage, and so could with care be lessened or eliminated. Dastre and Morat, appreciating the remarkable way in which two or more alkaloidal bodies are capable of neutralizing each other's dangerous

effects, while promoting a mutual and beneficial result, introduced the use of morphine and atropine before chloroform inhalation. Schäfer and others have insisted upon the further benefit following the addition of atropine to morphine. They contend that atropine, while it lessens the asphyxial danger, also depresses the vagal centres and fibres, and thus diminishes the liability of reflex circulatory collapse. Terrier and Péraire, who used the combination in the wards of the Hospital Bichat, failed to obtain results as favourable as Dastre had anticipated. Again, Claude Bernard and Laborde, with the view of avoiding the undesirable effects of morphine, adopted the use of narceine and other alkaloidal bodies derived from opium, thus anticipating to some extent the recent introduction of "pantopon" by Sahli and others, although they were working with unstandardized drugs, and therefore could not obtain uniformity of action. Julliard, of Geneva, was one of the first advocates of the use of morphine antecedentally to ether, but Kappeler, whose experience with this combination was unfavourable, preferred to use chloral hydrate given by the mouth a few hours before the inhalation of ether. Chloral given before chloroform was used by Dubois at the Hôtel Dieu, and by Froné, of Brest; and various drugs have been so employed, veronal, advocated by Krönig and Zadro, and chloretone being two of the most recent.

The principle of the interaction of alkaloidal bodies once recognized, it has become a question not whether such drugs should be employed as adjuvants to inhalation anæsthetics, but rather which of the alkaloidal substances shall be selected, and how can they be best exhibited. It must not be forgotten that before the days of Crawford Long, the protagonist of the introduction of ether, and Simpson, the popularizer of chloroform, opium was relied upon as the means of mitigating the pains of surgery. Morphine by itself failed unless such doses were used as were not free from toxic dangers.

Schneiderlin, soon after the separation of scopolamine from *Scopolia japonica* by Schmidt in 1890, by combining that body with morphine sought to obtain an hypnotic powerful enough to produce sleep even though a general anæsthetic were not used, and one competent to carry the patient through most surgical procedures immune from suffering. The powerful advocacy of Korff and many more failed to prove the possibility of this method, although in midwifery Gauss and others of his school still maintain that a dreamlike state can be induced without inhalation anæsthetics. Terrier, holding opposite views, collected some 1,488 cases, and convinced himself that scopolamine was not the panacea

some had believed. Indeed, in his view, the action of scopolamine is uncertain, and often fraught with danger. Norris has demonstrated that such dangers are less when scopolamine is combined with morphine, as are those of morphine when combined with scopolamine; still the dangers, it is averred, cannot be ignored.

The wider experience of these drugs which we now possess has led to a more exact appreciation alike of their merits and their limitations. When they are employed as anæsthetics the quantities given tentatively and in successive doses involved a risk the extent of which could not be readily gauged, since a patient who may sustain a given dose at the commencement of a severe operation, may yet be quite unable to resist its persistent effect developed at the close of the surgical manipulation. As must always be the case with anæsthetics introduced into the organism by hypodermic or intradural injection, the drug which has once entered the blood-stream must go on exerting its influence so long as it remains potent; nor can its period of potency be accurately predicted for any given individual. The question of dosage has to be determined at the commencement of the operation, while the changed conditions brought about by shock, nerve exhaustion, and so on, render it practically impossible to dose for the critical period—i.e., the close of the operation.

It was not long, then, before recognition came that the value of such drugs as morphine, scopolamine, atropine, and the alkaloidal bodies of opium lay not in their use as anæsthetics, but as adjuvants to general anæsthetics given by inhalation. In this way the dangers of both classes of drugs might, it was hoped, be diminished or abrogated. Smaller doses of the injected substances would carry the patient into sleep—a sleep which inhalation of chloroform or other anæsthetic could deepen to narcotic anæsthesia; while so little of the general anæsthetic would be required that its use would be rendered safe. Moreover, the amount and strength of the vapour of the general anæsthetic employed was in this method minute by minute under the control of the skilled anæsthetist, and could be adapted to the changing requirements of the surgeon and the patient.

The substances which have been employed by hypodermic injection most largely before general anæsthetics are scopolamine, morphine, atropine, and the chlorides of the alkaloidal bodies of opium, grouped under the term "pantopon" or "omnopon."

The physiological action of scopolamine is now well known and there can be little doubt that its association with morphine brings about a

better result than can be obtained from either drug if given alone, and further, appears to be more free from danger. Whitacre's views with regard to fatty changes being caused by scopolamine have not stood the test of experiment, for Professor Nicholson found that non-lethal and toxic doses given to the lower animals daily, for fourteen days, produced no such changes in the liver, kidneys, or myocardium; indeed, no effects on the tissues, besides chronic congestion, followed. Kockman's research need not detain us, as more recent workers have traversed his conclusions.

It will probably facilitate discussion if we consider certain heads under which it is desirable that further information should be sought.

(1) Dangers and difficulties incident to the above-mentioned combined methods.

If we exclude midwifery cases, most of which belong to another category, since larger doses are then used, there have not been many recorded instances of death or of danger due directly to scopolamorphine. Nicholson collected a considerable number of reputed danger cases, and analysed them, with the result that those in which a necropsy had been performed revealed that the death was not causally related to the anæsthetic. In other instances where no post-mortem examination was made, the evidence pointed to several more probable causes of death, other than the action of the drugs used. Brieuc recorded two deaths, which he admits were due to too strong a dose of morphine; and Faust reported a most interesting experience, and one which, so far as I know, is unique. It was the occurrence of violent spasms of the muscles of the neck and larynx, causing dyspnœa, and calling for repeated forced respiration. The evidence of most surgeons appears to point to one possible danger—respiratory difficulty. Whether this is due to the morphine or the scopolamine it is hard to say, but the former drug is usually held to have been responsible.

(2) The difficulties of the induction are certainly increased, especially if the scopolamorphine is given with atropine. The ocular phenomena are less sure guides, as effects due to the alkaloidal bodies may mask those arising from the inhaled anæsthetic. In the other direction the induction is rendered easier, as the patient is in a sort of "lotus" sleep and recks little what happens. This varies in intensity, and we need the experience of others to determine the best means of ensuring this state. The recognized methods are:—

(*a*) Repeated injections given nightly for a few nights, and even at intervals during the day, so that, when the actual operation is to take place the patient may not realize what is about to happen. This is

Dr. Crile's way of "stealing the thyroid." The method has been applied to other operations besides removal of the thyroid, but some authorities contend that neurasthenic cases are made ultimately worse by such experiences.

(*b*) The injection is given overnight if the operation is to take place in the morning, and one or more injections are given in the morning, the last being half an hour before the inhalation of the anæsthetic.

(*c*) In other cases three or four injections are employed at intervals of two or three hours, the last being given just before inhalation is commenced.

(*d*) A single injection, administered half or three-quarters of an hour before the operation, is perhaps the most usual in this country, and is that which I have most commonly adopted. Experience alone can show which plan is the best, and it is desirable that members of this Section should tell us their personal experience. My own is, that unless the injection is given fully an hour before the general anæsthetic, its maximum effect is not developed in time to avoid the arousing incident to inhalation.

As to dose, the usual amount given in a single dose is: scopolamine, $\frac{1}{100}$ gr.; morphine, $\frac{1}{6}$ gr.; atropine, $\frac{1}{120}$ gr.; but this, I take it, is only an average dose, which requires increase or diminution in certain cases. When heavier dosage seems desirable, it is wise, I think, to adopt the plan of giving divided doses, as this enables the administrator to estimate the patient's susceptibility to the drugs. This increases the trouble, but also makes for safety.

It may be asked which general anæsthetics are most useful, when given in relation with scopolamorphine. My experience only extends to chloroform, ether and nitrous oxide: any of these or of their mixtures, solutions and successions appear to answer well. Some surgeons have complained that scopolamine produces rigidity, and advise its exclusion in abdominal work. But the rigidity which does occur is not a constant phenomenon and is often due to the supervention of impaired pulmonary ventilation—a not uncommon result of morphine, with or without scopolamine. It can be usually corrected by giving oxygen. For open ether, I think the use of scopolamorphine with atropine almost essential. The limitation of the drug inhaled, one of the primary objects of the method, is then essential, and atropine, besides correcting some of the undesirable effects of the scopolamorphine, also prevents the excessive secretion of mucus and saliva, consequent upon the large quantity of ether which is inhaled in this method. Whether the drugs

named are the best for the purpose in view we have yet to consider. It has been suggested that the addition of cactin is an advantage, but I have not found it so, and the literature seems to show that others are in like case with myself.

Mr. Louis Leipoldt has recently drawn attention to the work of Sahli, of Berne, who has employed a mixture of the soluble chlorides of opium. The relative strengths of the following are said to be known: morphine, narcotin, codeine, papaverine, narceine, thebeine, hydrocotarnine, codamine, laudanine, laudanidine, laudanoeine, meconidine, papaveramine, protopine, lanthopine, cryptopine, goscopine, oxy-narcodine, xanthaline, and tritopine. The employment of this mixture (omnopon) is said to have advantages over that of scopolamorphine, but my experience of pantopon or omnopon is, as yet, too limited to be of any value.

We have yet to discuss the technique to be followed. The elaboration of Gauss and his followers seems to me to be unnecessary save in exceptional cases. The drowsiness engendered by the injection does not yield to ordinary stimuli, and if reasonable care is taken, and talking avoided, the patient can be dealt with in the ordinary anæsthetizing room. Possibly in cases of exophthalmic goitre the patient is best anæsthetized before any movement is attempted.

A word, in conclusion, as to relative safety of the combined and simple methods. The former certainly does require special care, and attention to detail. There is more tendency to respiratory restriction, and this during the induction may cause delay, while during the maintenance it may give rise to congestive conditions. The pupillary phenomena are less a guide than usual, and those who rely largely upon them may be embarrassed until experience has extended their knowledge of the changed conditions. The after-care is, in these cases, most important. The patients often sleep for hours, and their posture and breathing must be kept under observation. As a rule, after-effects are slight, although some persons complain of nausea, some of throat dryness, due, respectively, to the combination of chloroform and morphine, and to atropine. Sickness, if a result, is the delayed form coming out twelve or more hours after the operation is finished, and is best treated by sedatives, as it is probably a nerve and not a stomach symptom.

In opening this discussion I have avoided detailed reference to the literature of the subject, and to my own experience. Among the many who have advocated the method, Macnaughton-Jones was one of the first in this country, while abroad, and in America, many surgeons have adopted it and recorded their individual experiences.

## DISCUSSION.

Mr. F. S. ROOD said it seemed to him that it was difficult to generalize on a comparatively new method of anæsthesia—that the only way was to keep accurate notes of the cases, and to draw conclusions from the result. In the cases which he had been able to record he had endeavoured to follow the same technique in each case. Briefly, the injection of scopolamine, morphine, and atropine was given hypodermically forty-five minutes before the operation. The patient was then left in bed, with screens around, or in a darkened room. The anæsthetic was commenced in bed, and complete surgical anæsthesia was obtained before moving the patient. He had tabulated the following 300 cases under five headings :—

(1) The dose administered.
(2) The narcotic effect produced before operation.
(3) The induction of anæsthesia.
(4) The general course of anæsthesia during operation.
(5) The after-effects.

(1) *The Dose.*—In the first fifty cases $\frac{1}{100}$ gr., $\frac{1}{120}$ gr., and $\frac{1}{6}$ gr. of scopolamine, atropine, and morphia respectively, were given to twenty-seven women, while in the case of the men a preliminary injection of $\frac{1}{6}$ gr. of morphia one and a half hours before operation preceded the scopolamine, atropine and morphia injection. In the remaining 250 cases all received $\frac{1}{100}$ gr., $\frac{1}{120}$ gr., and $\frac{1}{6}$ gr. of scopolamine, atropine and morphia respectively.

(2) *The Narcotic Effect produced before Operation.*—One hundred and sixty-seven of the patients were in profound sleep at the time of operation. The remainder were very drowsy and indifferent. The chief effect produced, which he was able to obtain from a few medical men, students and others who had had this method of anæsthesia, was that there was complete indifference to surroundings and absence of fear. In two cases there was no effect.

(3) *The Induction of Anæsthesia.*—To the first forty cases ether was administered by the open method from the commencement of anæsthesia. It was found that the irritating ether vapour sometimes caused those patients who were only lightly asleep to wake up. So that in the remainder of the cases anæsthesia was induced to the second degree with chloroform and continued with ether. There was no struggling, except in one case, the patients usually passing under the influence of the anæsthetic without the slightest movement.

(4) *During Operation.*—The respirations were in most cases indistinguishable from or even quieter than that of chloroform anæsthesia. A marked effect was the insusceptibility of these patients to reflex troubles, either cardiac or respiratory. In twenty cases of thyroidectomy there was stridor in one case only. With regard to the amount of relaxation obtained by this method, it appeared to be in direct proportion to the amount of ether administered. Whilst the quiet respirations were obviously an advantage in abdominal surgery.

(5) *The After-effects.*—The patient usually remained unconscious from three to five hours after the completion of the operation. After-vomiting appeared to be much diminished by this method, and in the few cases in which it did occur it did not take the delayed type.

*Conclusions.*—From these results he thought that it was safe to state that the method had some advantages. From the point of view of the patient it either abolished or robbed of its terrors the preliminaries of an operation, which in some cases, as for instance in exophthalmic goitre, was a very real advantage; also it diminished the discomforts of after-pain, &c., by lengthening the period of unconsciousness. Finally, there was the undoubted advantage of being able to substitute with equal results a safe drug, such as ether, for a dangerous one such as chloroform.

Dr. MACNAUGHTON-JONES said that he had come to the Section to seek information rather than to give it. He had been resorting to the scopolamine-morphia and chloroform anæsthesia in certain grave abdominal and pelvic operations for nearly five years.[1] The great majority of these had been performed under this method, and necessarily included those which occupied a lengthy period of time in operation, and many in which the patients were extremely bad subjects. The plan he had always adopted was to give a subcutaneous injection of $\frac{1}{6}$ gr. of morphia and $\frac{1}{100}$ gr. of scopolamine, after the bowel had been well emptied the night before; a second injection was given the following morning after a rectal enema, and one hour before operation $\frac{1}{30}$ gr. of strychnine, and $\frac{1}{100}$ gr. of atropine subcutaneously. In some instances, when the operation was less severe, only one injection on the morning of the operation was given. A "Vernon-Harcourt" regulator is almost invariably used. He had only time to look up the last thirty of his gravest cases, which might be taken as typical of the effect and advantages of this form of anæsthesia. In regard to vomiting, in eighteen of these cases there had been little or no sickness, sickness in five on the day of operation, and four had not vomited until the second day. Only in one case had there been persistent vomiting; in this, three operations had been performed at comparatively short intervals. It was clearly a case of idiosyncrasy. The patient had been operated upon previously under chloroform, and there had been persistent vomiting for some days. The conditions antecedent to operation were, as Dr. Dudley Buxton had stated, more favourable, from the calm and rest of the previous night, and her indifference at the time of operation. The "Vernon-Harcourt" regulator he preferred from the knowledge it afforded of the quantity of anæsthetic which was being inhaled, while the addition of the scopolamine and morphia secured that a minimum of chloroform was administered in proportion to the severity and length of the operation. There was decidedly a better condition generally on the day of the operation—greater calm and less pain. No untoward symptoms had at any time arisen with any patient of his due to this method of administration. He had not used scopolamine and morphia with ether. He thought

[1] *Brit. Med. Journ.*, 1908, ii, p. 809.

that the time had arrived when, with their present knowledge of the physiological action of the various anæsthetics, anæsthetists might more definitely formulate the conditions which demanded certain methods of administration, and also the nature of the anæsthetic indicated. Thus greater uniformity of administration would be arrived at.

Dr. BLUMFELD said his own experience had been limited, except for five cases in which morphia and scopolamine were used, to the use of atropine and morphine before the inhalation anæsthesia, the latter being sometimes open ether, sometimes a mixture of chloroform and ether, sometimes chloroform. He asked if Dr. Buxton would say what was the special object in giving scopolamine as well as morphia and atropine. Did he not think that morphine and atropine sufficed to achieve what was hoped for by those preliminary injections? Dr. Blumfeld did not know enough about the pharmacology of scopolamine to see what it could effect that atropine would not do. Was there really any object in using scopolamine and morphine and atropine in one injection before inhalation anæsthesia, rather than using morphine and atropine? He used $\frac{1}{6}$ gr. of morphia, $\frac{1}{120}$ gr. of atropine, three-quarters of an hour before the operation, and he had seen nothing detrimental in the method. He liked to use it as a routine in abdominal cases, because if he found it advisable to use nothing but open ether he had the advantage of not having an excessive secretion of mucus, and of being certain of a sufficient anæsthesia, and in association there was less after-sickness, some of which was probably due to the return of swallowed mucus. The preliminary was good therefore in case large quantities of ether were required. That was a great point. Dr. Macnaughton-Jones had mentioned the additional quietness of mind of the patient. But when the anæsthetic could be given in a room apart from the operating room or theatre, with one nurse or the practitioner or some other acceptable person present, one's own personal influence was able to accomplish the quietening of the most frightened female. Another important matter was the length of time beforehand that the injection was given when one injection was used. Mr. Page, a member of the Section, asked him to draw attention to that, because in the hands of a comparatively inexpert administrator trouble arose through his not having appreciated the extent to which the morphia had got to work in the patient, the injection having been given too near to the time for the operation, so that it had not reached its full effect when the inhalation was started. In two cases artificial respiration was necessary, through the narcotizing of the respiratory centre, due to the combination of the drugs. The preliminary injection was essential when it was proposed to use open ether, after Crile's method, during removal of the tongue. With regard to women and feebler subjects, even when morphine and atropine were not given, good results could then be obtained with open ether. In answer to Dr. Macnaughton-Jones, it would be difficult to arrive at a definite plan for all cases. Possibly he had seen only that one method carried out with skill and success, but if he had seen others he might be equally willing to employ them. All anæsthetists believed that, with sufficient experience, they could count on good results by any method.

Mrs. DICKINSON BERRY said she had used, at the Royal Free Hospital, morphia $\frac{1}{6}$ gr. and atropine $\frac{1}{100}$ gr., as a preliminary to anæsthesia in some eight or ten cases, mostly cases of goitre. It had been the intention to give the method a longer trial, but in every case there was so much excitement and sickness after operation that the sister of the ward requested that it should not be continued. Recently she had had three cases in which $\frac{1}{100}$ gr. of scopolamine had been added to the atropine and morphia, and administered one hour before the operation. In these cases there was no sickness. She had not found the patients before the operation in the drowsy condition which had been described by other speakers, though perhaps they were quieter and less inclined to talk than usual. She found that induction was longer than when the drugs were not used, and that it was difficult to estimate exactly when anæsthesia was complete. In each of the three cases above referred to the corneal reflex had disappeared, yet when the first incision was made the patient moved vigorously; but when once under, these patients certainly required less than the usual quantity of the anæsthetic. In all the cases she began with chloroform, but substituted ether before the end of induction.

Dr. G. A. H. BARTON said he had not had much experience with the scopolamine and morphine method, rather under 200 cases. The cases in which he had used the method had been principally laparotomies, enucleations of thyroid glands, and various endoscopic methods, such as gastroscopy, laryngoscopy, and œsophagoscopy. It was useful in those classes of cases. He had not used it in every kind of case. He noticed the name hyoscine was not mentioned, though he believed hydrobromide of hyoscine, the drug he used, was the same thing as scopolamine. He had not used atropine in that connexion, though he had given atropine and morphine in certain cases, such as for the reduction of mucus. The dosage had been $\frac{1}{100}$ gr. of scopolamine and $\frac{1}{6}$ gr. or $\frac{1}{4}$ gr. of morphine. He had ordered it to be given half an hour before the time appointed for the operation to commence. If there was a delay of two hours before operating he had sometimes given an extra $\frac{1}{200}$ gr. of scopolamine. The effects produced he had found to be variable. Some people came to the table in a delightfully sleepy state, while in other cases the dose did not seem to produce any effect. He questioned whether $\frac{1}{100}$ gr. of scopolamine was sufficient for most people. After giving those things, the induction of anæsthesia was more easy, even in the cases which did not show sleepiness; there was less struggling. There was also less respiratory excursion, and less abdominal rigidity. For abdominal cases he generally used open ether, very seldom chloroform. Formerly, when he had started by ether in abdominal cases, without scopolamine and morphine, he had found it difficult to keep the patient quiet. But that was not now so, and there was much less cough, an important matter in laryngoscopy and œsophagoscopy, where one had to keep the patient under by the Junker method, and the operator objected to the puffs from the inhaler getting into his eyes. By the present method it was easy to keep the patient under without reflex cough, and yet withhold the anæsthetic at intervals as requested by the operator. He thought the injection considerably reduced shock, and that fact largely counter-

balanced any bad effects on the respiratory apparatus. The amount of anæsthesia required was less, and the after-effects were very satisfactory. He agreed with Dr. Macnaughton-Jones as to the small amount of vomiting, which was very important after laparotomy, as vomiting caused dragging on the stitches, with pain and discomfort. He asked what would be considered contra-indications against the injection of the drug, apart from kidney disease. He would also like to hear more about dosage, especially of scopolamine.

Mr. H. BELLAMY GARDNER wrote that he had found the hypodermic injection of $\frac{1}{100}$ gr. of atropine sulphate one hour before the administration of ether or chloroform a valuable auxiliary in causing (1) the prevention of sweating, thereby retaining the body heat; (2) reduction, and in most cases the complete absence, of the air-passage mucus produced by ether. He was not yet certain of its *extent* of power in preventing shock. He found morphia did definitely blunt the transmission of surgical stimuli, but (excepting in very robust, alcoholic or malarial subjects) he did not resort to it at all as a preliminary to anæsthesia, on account of the delayed recovery of consciousness which followed the operation. Some surgeons held that morphia beforehand distinctly increased general oozing of blood from the wound during operation, and he was sure that he had seen some cases of oozing only thus explained.

Dr. SILK said that within his recollection the use of morphia and morphia and atropine had been advocated some twenty years ago; it then fell into disuse, and of recent years had been revived. It seemed, therefore, that it was somewhat a question of fashion; bearing in mind, too, the diverse opinions expressed in the course of the present discussion as to the action and advantages of these injections, he did not feel inclined to advocate their routine use with much enthusiasm. His experience with scopolamine-morphine was very limited as compared with previous speakers, and, so far at any rate, he was not much impressed with its advantages. The method of injection usually advocated—i.e., repeated injections—was presumably intended to reduce the patient to a state of stupor before the inhalation of the general anæsthetic. But in hospital work this was difficult, as the patient had to be partly roused in the course of his transference from his bed to the operating theatre. In many cases the action of the drug continued longer than was necessary, and the patient remained in the state of stupor for twenty-four hours or more. He had received complaints from surgeons that undue rigidity followed the use of scopolamine, but it was very difficult to decide whether or not this rigidity could be put down to that drug; it might just as well be ascribed to the use of the Vernon-Harcourt inhaler which he had employed in the cases. With regard to after-sickness, there appeared to be much divergence of opinion. Dr. Macnaughton-Jones had spoken of a series of thirty cases, in eighteen of which he had no after-sickness; in Dr. Silk's opinion this was not a larger proportion than might be expected in the practice of a skilled anæsthetist who did not happen to have used scopolamine. Other speakers had spoken of very troublesome after-sickness occurring when this drug for

atropine had been used. It seemed to be quite clear, therefore, that we did not possess in these drugs an absolute panacea for this trouble.

The PRESIDENT (Dr. W. J. McCardie) said that for some years he had used a mixture of scopolamine and morphine, which was prepared for him, both in private work and in hospital, of actually the same strength as in countries abroad—i.e., $\frac{1}{100}$ gr. scopolamine and $\frac{1}{4}$ gr. morphia. The results he obtained had been very different from those described by German writers. He found that the drugs used by him did not give as good or constant results as those used abroad, especially in regard to the scopolamine. The differences he had noted had been, that the German preparation slowed the pulse, which was generally full, it caused respiration to be slow and rather shallow, caused very little oozing of blood, produced no blueness, and gave rise to a fairly deep sleep. But similar proportions of drugs supplied by an English firm and in hospital tended to quicken the pulse, to make the respirations slow and shallow, to cause marked oozing of blood, often blueness, and produced very little sleep. The oozing had been complained of by several surgeons. Of course it was more marked in plethoric than in thin patients, and he thought it was the hyoscine or atropine which tended to cause the oozing and the morphia the blueness. He believed that open ether would soon be given up if it were not for the help of drugs like morphia and scopolamine, just as he thought that much of the success which Americans claimed for the administration of gas and oxygen in all sorts of large and complicated operations was largely due to the administration of a full dose of morphia half an hour beforehand. He still used scopolamine and morphia or morphia and atropine before ether, but practically never a full dose of it before deep chloroform anæsthesia. He only used it before light chloroform anæsthesia, and employed it to lighten that anæsthesia, as, for instance, in goitre operations. For deep anæsthesia with chloroform he rarely used narcotic drugs, but administered a mixture of strychnine and atropine, in which he had great faith; five parts strychnine to one of atropine. Most of the injections of scopolamine and morphine had been made immediately before the operation, and they at once seemed to stop secretion of mucus. The other effects were observable in from five to ten minutes after injection. In children and old people he avoided using a mixture containing morphia. Atropine was generally thought to be a heart stimulant, and its action on the vagus to be important. Webster, who had done experimental work in Manitoba University, denied that effect on the heart and the consequent raising of blood-pressure. Therefore, apparently the good which atropine would do was in the direction of strengthening and deepening respiration. The Germans stated that the effect of the preliminary injection of scopolamine and morphia was to lessen shock and steady the respiration and the circulation. He felt safer in using the mixture because he got lighter anæsthesia than without it, and it lessened the after-effects and stopped secretion, thus enabling ether to be given where otherwise it might not have been possible. He thought the Section could congratulate itself on having had a good discussion, and he hoped a stimulus would thereby be given to the

further use of the injections in this country. With regard to Dr. Macnaughton-Jones's suggestion concerning uniformity of choice and method for particular conditions, that was a counsel of perfection. There were many schools, many traditions, many teachers.

Dr. DUDLEY BUXTON desired to congratulate the Section on having in the presidential chair a man who was always able to give fresh knowledge, and to put it forth in a clear manner. He always felt, after having heard Dr. McCardie, that he had heard something put in a clear way and with clear thought. It would take too long to traverse the ground trodden by the President concerning atropine, or to consider in the detail necessary the work on that subject carried out by Dr. Webster. But even if Dr. Webster's conclusions were accepted in their entirety, atropine still remained a valuable asset, as it exercised a powerful effect on the vagus as had been shown by Schäfer years ago. Referring to scopolamine, he said it was most important to feel secure about the potency of the drug which one employed. It had been said by many workers that scopolamine acted better if it was prepared just before injection, and was used separately from morphine and atropine. It was difficult to say whether that was so. Certainly the samples of scopolamine differed enormously according to the source from which they were derived. With regard to the alleged oozing following the use of the method, that might be put into the same category as rigidity. When difficulties arose during an operation there was often a tendency to say the patient was very rigid, or other things, and that the anæsthetic was responsible for the trouble. One had to look at the matter with a philosophic mind, and only accept statements after careful examination. It had been asked, why use scopolamine in addition to morphine? The combination of atropine and morphine had been vaunted by Dastre and Morat years ago, but their use had not produced the effects desired, and it was the addition of scopolamine to those drugs which enabled more recent workers to obtain better results. In answer to Dr. Blumfeld, he agreed that there was a danger if one gave a large dose of morphine and then commenced immediately the inhalation anæsthetic, because one did not know how far the injection anæsthetic would carry the patient into the realm of narcosis, and as it was not easy to decide how much of the general anæsthetic to give. In physiological work, where one had morphinized a cat or a dog, the animal would require very little of the general anæsthetic. In answer to Mrs. Dickinson Berry, he thought the explanation of the patient squirming at the incision, although apparently well under, was that when the patient was under morphine and scopolamine he breathed very shallowly, and was often merely asleep, so that very little of the general anæsthetic was taken into the chest. The conjunctival reflex in very profound sleep was so slight as to be easily overlooked. The patients she referred to were possibly asleep, and not really deeply under the anæsthetic, although apparently narcotized, and were aroused by the stimulus caused by the use of the knife. Dr. Barton's remarks were very interesting. It was better, the speaker concluded, for the patient to be carried or wheeled to the operating theatre, and lifted very gently on to the table, without shaking or

rousing him. With regard to dose, what he had found best was to maintain the dose of scopolamine at $\frac{1}{100}$ gr., and if necessary increase the amount of the morphine. But the whole subject required further investigation before definite conclusions as to dosage could be arrived at. He did not think any increased shock followed the use of morphine. He did not know what more could be said, since in the present state of our knowledge the chief thing to bear in mind was that all injected anæsthetics passed out of the control of the administrator so soon as they were injected, and so were contra-indicated when it was desirable that the degree of narcosis should be varied from time to time during an operation. In answer to Dr. Silk, what he said was that he believed the cases of rigidity were due to asphyxia, and when that complication was present it could be relieved by using oxygen. Two per cent. was sufficient to obtain and maintain complete surgical anæsthesia. If Dr. Silk, in using the Vernon-Harcourt inhaler, had met with too slight a degree of narcosis, it must have arisen through some error in his technique. In many of Dr. Macnaughton-Jones's cases the anæsthetic was not given by him (Dr. Buxton) but by others, and so in that way the personal equation was largely neutralized.

# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

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*VOLUME THE FOURTH*

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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1910-11

## BALNEOLOGICAL & CLIMATOLOGICAL SECTION

LONDON
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1911

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# Balneological and Climatological Section.

October 28, 1910.

Dr. T. Fred Gardner, President of the Section, in the Chair.

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## PRESIDENTIAL ADDRESS.

### Air and Water: Is there Anything New under the Sun?

Permit me to turn your thoughts back to a very early date in the history of the art of medicine and transport yourselves in imagination to the Island of Cos, in the Ægean Sea. It is about the year 400 B.C. The following words are being written in Greek by an inmate of the Asclepion: "Whoever wishes to investigate medicine properly should proceed thus: In the first place to consider the seasons of the year and what effect each of them produces (for they are not at all alike, but differ much in themselves in regard to their changes). . . . We must also consider the qualities of the waters; for as they differ from one another in taste and weight, so also do they differ much in their qualities." These words form the opening phrases of a treatise entitled "Airs, Waters, and Places," written by Hippocrates, the so-called Father of Medicine, and this treatise has suggested to me the title of my address. For here we have one of the oldest and best authenticated treatises written two thousand three hundred years ago, composed by an expert, and dealing with the following matters: Some general observations on the importance of cultivating a knowledge of the effects which the different seasons, the winds, the various kinds of water, the situation of cities, the nature of soils, and the modes of life exercise upon the health, and the necessity of a physician making himself well acquainted with all these matters if he would wish to practise his profession successfully. The author insists with particular earnestness on

the utility of studying the constitution of the year and the nature of the seasons, and refutes the opinions of those persons, in his days, who held that a knowledge of all these things belongs to meteorology rather than to medicine. He treats of climate and the diseases prevalent in localities characterized by their exposure to particular winds. He treats of the various kinds of water and their effects in different states of the human constitution. The remarks are of an eminently practical character, and evidently must have been the results of patient observation and experiment, so that even at the present day it would be difficult to detect Hippocrates in a single error of judgment. He has occasion to deliver his opinions on the formation of urinary calculi, which he does at considerable length. The nature of the seasons is treated of and their influence on the health circumstantially stated. Some of the observations are remarkable for their acuteness and originality, such as the following: That in estimating the effects of a season on the health we ought to take into account the seasons which preceded it. The effects of climate and the institutions of society on the people of his time are treated at considerable length, and Hippocrates evinces an intimate acquaintance with human life and a most philosophical spirit in contemplating the subjects which he is handling. Indeed, few works in any language display as much accurate observation and originality of thought. The varieties of disposition and of intellectual and moral development among mankind are set down as being derived in a great measure from differences of climate and modes of government. Thus, he remarks, the Asiatics are of an effeminate and slavish disposition because they live in a soft climate, on a rich soil where they are little exposed to hardship or labour; while the European character is contrasted with reference to the severe winters, frequent rains and again protracted droughts and winds, causing a wildness of disposition, with a courage exemplified by the Scythians and Amazons who frequented a country more mountainous and rugged than the Asiatic.

In this learned treatise, then, we have one of the earliest references in medical literature to balneology and climatology. Hippocrates puts on record that the air of a place, the soil of a place, the water of a place, has a definite effect upon the character, the nature, the health, and the disposition of the individual, and it is interesting to note that climatology can date back its medical ancestry as far as, if not farther than, many of the other branches of the medical art recognized by the Royal Society of Medicine, and has no need therefore to be ashamed of its ancient lineage, its ancient acceptance as an integral part of

medical science, and it may legitimately boast that its literature can be traced back to 400 B.C., when the treatise of Hippocrates was written on "Airs, Waters, and Places."

Concerning baths and the external use of water, whoever has visited Rome and looked upon the stupendous ruins of the Baths of Caracalla, or the Thermæ of Diocletian; whoever may have visited the exhumed ruins of the baths at Herculaneum or Pompeii, or gazed upon the Roman remains at Bath in our own country, must be impressed not only by the importance attached by the Imperial race to bathing as a luxury and a pleasure, but the student who inquires more closely into the arrangements of the buildings and the knowledge possessed by the architects who designed the same must confess that not only was the pleasure and luxury of the Romans studied in the ornate decoration and magnificent spaciousness of the buildings, but the art of balneology had already become known and practised to a degree which, when contemplating modern spas, forces from one the sub-title of my address to you: "Is there Anything New under the Sun?" Listen to Celsus discoursing on the use of the bath, and do you not trace an echo in the somewhat similar directions of the spa physician of to-day? Here is what he says: "First sit in the tepidarium; after resting there a little they should enter and descend into the solium; then be anointed and gently rubbed with plenty of oil; go into the solium a second time, and afterwards gargle the mouth, first with hot water, subsequently with cold." It sounds as if Celsus were anticipating somewhat. Surely here we have the first record—strictly localized, I admit—of the Scotch douche treatment of our modern hydropathists. Galen, too, gives an excellent account of cold baths and affusions as applied to the treatment of hyperpyrexia. Yet it seems only the other day that embittered correspondence took place in medical journals on the advisability of using the cold pack or cold bath in cases of pneumonia or acute rheumatism accompanied with high temperature.

Air and Water! Such ordinary everyday subjects seem to possess very little to interest us in these scientific days, and yet they are the sole factors with which this Section has to do. For consider; it was only in 1774 that Priestley discovered oxygen in air, and shortly after Scheele found air to be a mixture of oxygen and nitrogen. A little more than five generations back these apparently elementary facts were unknown. Lord Rayleigh and Sir William Ramsay discovered argon as a constituent of the atmosphere so recently as 1894. For one hundred and twenty years chemists seemed satisfied that so far as the atmosphere was

concerned there was no new thing under the sun, when the two eminent scientists I have just mentioned discovered an entirely new gas therein. Water, too, had been analysed and chemically computed; its mineral, saline, and gaseous varieties had been formulated with such exactitude that again we might have reasonably questioned the discovery in water of anything new under the sun. Yet it was only a year or two ago that radio-active quality was proved to exist in the Bath water, and again comes a falsification of the finality of our knowledge concerning water.

This Section, then, exists to prove scientifically that in the therapeutical uses of air, water, and places, there is much that is helpful to medicine; we exist to bring our share of truth and experience in such matters to the common stock of knowledge, and, in spite of hostile criticism, I think we can claim to have done much to elucidate the uses of balneology and climatology, and that in a truly scientific spirit. Since the foundation of the British Balneological and Climatological Society in 1895 the following additions have been made to our scientific knowledge on these important subjects by Fellows of this Society, which now finds a place among the various Sections of the Royal Society of Medicine. In these papers and communications I think we have ample evidence that we have proved the existence of many factors in air and water which are essentially new factors, and factors of the greatest use in the art and science of medicine. Bear with me while I enumerate a few of the more important. We have had papers read, and discussions following thereupon, on the climatic treatment of phthisis, including the advantages of the home health-resorts; the gouty liver at sulphur spas; the use of water in the treatment of disease; uterine hæmorrhage as affected by the climate of altitudes; on the external treatment of syphilis; the treatment of cardiac disease by baths, exercises, and climate; the action of certain mineral waters on the secretion and composition of human bile; on circumstances which influence the effectiveness of climatic treatment; treatment of disease by heat, and the physiological action of superheated air; severe cases of neuritis and neuralgia treated by brine baths; the effects of baths on the blood-pressure; the danger of high altitudes in arterio-sclerosis; septic rheumatisms; treatment of nervous diseases by baths and climate; the effect of luminous and heat rays on the local and general temperatures; gout and rheumatism in relation to baths and climate; rheumatoid arthritis; on the clay and gravel soils of London, and the relative advantages of dwelling upon them; chronic affections of the kidney and morbid conditions of the urine arising therefrom in relation to

balneological and climatic treatment; on convalescence and chronic illness; on local factors influencing climate, with especial reference to subsoil; on the dietetic factor in spa and health-resort treatment; some questions of seaside climatology; a scheme for the comparison of climates; the needs of the modern health-resort; remarks on British winter health-resorts; the spa treatment of arthritis deformans; climatology from a medical standpoint; the climatology of the Sahara; the influence of climate on old age and senile diseases; the treatment of disease by thermal methods; the treatment of gout by the ingestion of common salt-containing waters; the present position of the treatment of tuberculosis by marine climates; blood-pressure in spa practice; seaside treatment for sick children; the therapeutic use of sea water; intestinal lavage on the Plombières system; the Chiltern Hills and Dales in certain of their natural and medical aspects; atmospheric electricity; saline waters and the use and abuse of common salt; while almost every spa and health-resort physician has deemed it a duty to bring before the Society the climate of his particular sphere of influence and has expatiated on its merits, attributes, and adaptability for almost every disease under the sun.

Let me deal with one phase of our work which I think deserves more than passing notice. The scoffer has said: "This talk about the scientific use of baths and mineral waters, the paraphernalia of douches and massage, the varying temperatures of baths and waters is all humbug. What gets the patient well is change of air, healthy dieting, a new mode of life, and the rest is 'suggestion.'" I should be the last to deny that change of air, healthy dieting, a new mode of life—and if you wish to add—the "suggestion" which much of the procedure at baths, mineral-water spas, and such places exercise on the mind of patients *are* important factors in the cure which so often results from a visit to a health-resort; but I claim that there is a rational scientific application of important therapeutic agencies at work as well, and that it is the particular province of this Section to advance our accurate scientific knowledge concerning these matters. We are a little overdone with the powers of suggestion nowadays. After neglecting—as I hold in a most culpable manner—the psychical side of medicine for generations, we now seem to be drifting to the opposite extreme, and scientific investigation, bacteriology, and therapeutics are being pushed into the background to make way for suggestion, hypnotism, psychotherapy, and so-called Christian science. In the course of my life I think I have learned that the truth usually is to be found in the mid-point between

the extremes of the cults and fashions of the day. Medical men are trained in a school where materialism is everything; what can be dissected, exhibited physiologically or pathologically, is demonstrable, and therefore true; what cannot be so demonstrated is looked at askance, and comes under suspicion as quackery or knavery, or both. The pendulum has swung too far the other way, and now we rub our eyes in astonishment when we hear the Christian scientist declaring, "urbi et orbi," there is no such thing as death, omitting the poet's qualification "what seems so is transition"; there is no such thing as rheumatism, all pains are illusions, and 'tis thinking so that makes them non-existent. I prefer Shakespeare's philosophy put into the mouth of Hamlet, when he says: "There is nothing either good or bad, but thinking makes it so"; or the same writer's finer statement in Henry V.: "There is some soul of goodness in things evil would men observingly distil it out." There is no need for drugs, say these ultra-psycho-therapeutists; no need for science, pathology, bacteriology, or any materialistic process—all cures can be wrought by faith or thought-healing, or psychic force. Surely the truth lies between these two extremes. Man is not a mere body, he is body, soul, and spirit: you may dissect him to microscopic ultimates and yet fail to demonstrate the real Ego; nor is he merely spirit to be treated only with psychical forces. You may suggest cure to him and you may hypnotize him, but the bacillus, setting up a septic inflammation in his appendix, will slay him by a septic peritonitis, unless you call in a very materialistic surgeon to save him, and even then the materialistic surgeon must appear promptly on the scene to do this.

In a case of myxœdema you may persevere with every known psychic suggestion, and do far less for your patient than can be done by a thyroid tablet. Your patient with mitral regurgitation may have every faith in your skill, and be willing to listen, hypnotically or otherwise, to your most valuable and praiseworthy suggestions, but will derive infinitely more benefit from a few regular doses of standardized digitalis. Nor can you treat your patient successfully if you take into consideration merely his material bodily ailment and give no thought to his psychical side. In these days of keen competition and stress of life, how impotent are your drugs to cope with the whole of the ailment of your neurasthenic patients! Looked at from the material side only, your patient exhibits a weird compound of jangled nerves and vaso-motor aberrations, symptoms which to him or her mean alarming possibilities, are often the cause of insomnia, wakeful alarming thoughts

and suggestions of evils to come, which, to the bread-winner of the family or the mother on whom a large family is dependent, means an anxious unrest in the psychic region. Treat this with drugs, climate, and balneology, and it avails nothing; but after careful examination, if you can eliminate serious disease and can give your patient *hope*—that most potent of psychic elixirs—you have already more than half cured your patient, you have toned the soul and spirit of the man or woman, the reaction on the material is immediate: *now* your drugs and balneology will have a triumphantly easy task.

We are told by Christian Scientists that material remedies are of no value; by an aggressive and advanced psycho-therapeutist that material remedies are old-fashioned and out of date; by a certain section of our own profession that they have no faith in drugs, and, at most, allow a therapeutic value to a very limited number; and yet the accounts of cure by old-fashioned practitioners are neither few nor less startling than the much-*vaunted* miracles of the newer schools. It is hard to understand how a patient in the *maniacal* stage of delirium tremens can be brought into a fit state of mind to master the intricacies of the Christian Science text-book "Science and Health," nor is it feasible to sit down opposite a fractured bone or a half-witted patient with the same text-book as an aid to cure; and yet this is the sole resource of the Christian Scientist or the non-materialist psychotherapy. That material remedies can help us when psychical aids are valueless let me proceed to show:—

One of our eminent vice-presidents (Dr. Murray, of Newcastle) tells the following story in his little work "Rough Notes on Remedies"[1]: "I was driving past a house when I saw a furious maniac being held back from an open window by two policemen. He was struggling hard to get out and making a great disturbance. I went upstairs and found a doctor in the room, who explained that the patient was an epileptic suffering from acute mania, and that he had tried in vain to administer food and medicine. The maniac was too strong and furious to be dealt with. I therefore sent for chloroform and calomel; with a little manœuvring I got the patient slightly under the influence of the chloroform, and then I put 30 gr. of calomel on the back of his tongue, followed by a tablespoonful of cold water. I then left him in charge of the doctor and policemen and returned in two hours, when I found our patient on the night commode perfectly subdued, very limp and nauseated. After much profuse purging and vomiting he became as quiet as a child and fell into a sound sleep, to awake in a perfectly calm

[1] "Rough Notes on Remedies," 5th edit., 1906, p. 63.

frame of mind." A triumph of the material over the psychical, which should give pause to the upholders of the opposite theory, for the counterpart of this story happened in my own experience in this way: I was urgently summoned one afternoon to a house where I found a patient whom I knew by sight as a young man of feeble mental power. He was suffering from status epilepticus, and sitting by his bedside was a young man who took no notice of me, so I took little notice of him. I proceeded to give my patient a hypodermic injection of morphia, and, when this had somewhat checked the convulsions, an enema of chloral hydrate completed the cure of the status epilepticus. Next morning, when I made my visit, I heard that the young man beside the bed was a healer of the Christian Science order, who had by his ministrations produced the status epilepticus, which, unfortunately, his science failed to give him any power to control, and so my materialistic aid was called to the rescue.

So I would have you observe that while the value of suggestion in the manipulative exercises accompanying balneology, the douches and massage and complicated apparatus affording violet rays, or red rays, or yellow rays need not be ignored, there is room for scientific investigation as to the therapeutic action of these agencies which, as in the case of calomel and mania, digitalis and mitral regurgitation, thyroid extract and myxœdema, chloral and status epilepticus, show a materialistic action purely and simply; just as hypnotism in its effects on dipsomania, suggestion in hysteria, and psychotherapy in functional neurosis, can triumph over the admitted failures of inebriate homes, valerian, phosphorus, arsenic, and the other pharmacopœial resources of the materialist.

All these latter-day bath and light-and-air specialities are new things under the sun. Among so much that is bizarre and in Hippocratic days unthinkable, let us as a scientific Section make it our aim to winnow out the wheat from the chaff, for there is much evidence to prove the existence of both wheat and chaff in balneology and climatology. It should not be difficult for the talented, scientific men who form the larger part of the Fellows of this Section to aid very materially in the elucidation of some of these puzzling phenomena. As in the past, men who practise at spas or health-resorts can bring their stores of actual experience, with the varied agencies at their command, before the tribunal of their fellows here in London, and a frank discussion can take place on the merits or demerits of each new theory or each implied fact. At our annual provincial meeting the Fellows can visit one of our balneological or climatological centres and test for themselves by ocular

demonstration the progress made in this large addition to our therapeutical resources, and it must be that the whole science of medicine will benefit therefrom.

In support of the theory that there is nothing new under the sun, may I quote the following: "Remedial measures were adopted in the vicinity of medicinal springs which would no doubt contribute greatly to the cure of the sick. At his entrance the devotee was subjected to purifications and made to go through a regular course of bathing, accompanied with mechanical frictions; fomentations with decoctions of odoriferous herbs were also not forgotten. A total abstinence from food was at first prescribed, but afterwards the patient would no doubt be permitted to partake of the flesh of animals. Every means that could be thought of was used for working upon the imaginations of the sick, such as religious ceremonies of an imposing nature, accompanied by music and whatever else would arouse their senses, conciliate their confidence, and in certain cases contribute to their amusement. In addition to these means it is believed by many that the aid of animal magnetism was called in to contribute to the cure, but on this point the proof is not so complete as could be wished." Think you I have been reading this extract from the up-to-date advertisement of, say, Harrogate or Llandrindod Wells? It would fit in admirably with much that is done at either or any modern bath spa to-day. No, gentlemen; far back in the ages this extract was written by one Pausanias, who wrote thus, during the reign of Marcus Aurelius, of the Asclepia, in one of which Hippocrates wrote his treatise. There is nothing new under the sun in this sense. Bathing, frictions, music, arousing the patients' senses, conciliating their confidence, catering for their amusement is an old, old tale of the spas in Hippocratic days. When the scoffer speaks of suggestion as the main element in the treatment, he is merely repeating an old cynicism of the days of 150 A.D., and there is nothing new under the sun. What is new and what may yet be scientifically proved as useful in connexion with air and water it is for us as a Section to discover, establish, and demonstrate. From the past work of the Society, which I have summarized, I draw happy *augury* for the future. We have *elucidated* and scientifically proved that air and water contain much that is of therapeutic value, and we are making abundant use of this old method of treatment in multitudinous new and more scientific ways.

As your President, it is my pleasing duty to open this new session with a word of encouragement to you all. The science of balneology

and climatology has received the *imprimatur* of incorporation into the Royal Society of Medicine. It is for us to show by our scientific observations, our tested and recorded experiences, that we have a very rational and a very extensive part to play in the renaissance of our art. That just as Listerian and antiseptic methods have revolutionized surgery, just as bacteriology and *serum* therapy have revolutionized medicine, so a scientific study of the action of climate, of altitude, of particular soils, of the action of mineral waters, internally or externally, thermal or frigid, combined with electricity or radio-active, saline or *chalybeate*—is not only possible, but has a definite scientific value, and that the old reproach against hydropathy as a mere suggestive agent rests on no surer foundation than the old reproach of *empiricism* in medicine and surgery. We, too, as a Section of the Royal Society of Medicine, can bring our sheaves of scientific observation to the common bundle, and I believe most sincerely and most heartily that our efforts will bring no niggardly result to the general harvest. In one sense it is true there can be in air and water no new thing under the sun, for all have been there from the beginning; but in another and a wider sense, in the sense in which I have endeavoured to sketch the progress already made in the particular branch in which we are interested to-day, there remain in air and in water possibilities little dreamed of in Hippocratic days, little dreamed of when the British Balneological and Climatological Society was first formed only fifteen years ago, but which we by careful scientific elucidation have pledged ourselves to ascertain, which by daily experience and painstaking research we are becoming more and more familiar with, and which, to our lasting credit and honour be it said, we are using for the benefit of science generally and our afflicted patients in particular; these researches are proving that in air and water there are many new potentialities, accurately estimated, scientifically proved, and of great remedial value. This Section exists to study and appraise these phenomena and to show to an expectant medical world that in such everyday matters as air and water there is much that is new under the sun.

# Balneological and Climatological Section.

December 14, 1910.

Dr. T. Fred Gardner, President of the Section, in the Chair.

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## British Health Resorts for Foreign Invalids.

By Neville Wood, M.D.

At the very threshold of my somewhat novel topic I am met by the necessity of surveying the subject as a whole, rather than dealing, as I might otherwise have done, with certain of its more important details. This is due to the fact that even propositions apparently so elementary as that our British health resorts offer substantial benefits to foreign invalids, or would gain anything from their presence, will require some argument in their support. The policy, indeed, of most of the municipalities concerned would seem to exhaust itself in efforts to keep the Briton from foreign countries, rather than to bring the foreigner to Great Britain; and, while on this topic, I cannot refrain from protest against the appeals—short-sighted, if patriotic—issued presumably by responsible authorities against our sending our patients abroad, rather than to this or that British resort.

Considerations of dignity apart, do not such urgencies suggest an admission of weakness—an admission for which there is certainly no occasion? Much better, even for the ends in view, would be a frank recognition of the conditions under which a certain proportion of the invalids of any country do benefit by being sent out of it. By stating categorically the classes of patients unsuitable for home resorts these writers would, it seems to me, improve their own position, as they would thereby strengthen the hands of practitioners in allotting to British stations the vast remainder of patients, who would be rightly

sent there. Certainly, no well-informed British physician could conscientiously endeavour to dissuade all, or nearly all, his patients from seeking health in other lands, and I suggest that the proper way to redress an adverse balance is to take measures to attract those foreign invalids for whom it can be shown that the therapeutic resources of our country are peculiarly well adapted.

I have contended elsewhere (and towards the acceptance of this view, at home and abroad, the considerations urged in this paper are an additional contribution) that Continental health resorts should not be regarded as competing with British health resorts, nor British with Continental. For they are—and that for immutable reasons—complementary to each other. And it is my conviction that when we succeed in making the inhabitants of the European mainland as well aware of the specific advantages of our stations as we are of the indications for theirs, there will be a free interchange of invalids, instead of, as now, a movement practically in one direction—and that away from our shores.

Let me illustrate by a single example the absurdity of the present position. In one of the most distant of the Continental spas coming within the orbit of expatriated British invalids it is shown by statistics that one patient in every thirty hails from Great Britain; whereas, at one of our leading spas, it is estimated that less than one per thousand comes from all the countries of the Continent put together. This is a state of things likely to continue as long as the literature dealing with our health resorts is written in English only, and as long as it passes over in silence the advantages, actual and potential, of our stations to foreigners in search of health and recreation. It will, in fact, continue just as long as we are content to allow foreign physicians and laymen to suppose that there exist in our islands no spas or climatic stations of the highest rank. In a well-known German manual, describing the health resorts of Europe, there is no mention of any in England. Again, in a similar French publication, in its forty-ninth year of issue, whereas six pages are allotted to Spain, two are considered appropriate for Great Britain, while various errors and omissions sufficiently indicate the absence of competent revision.

It has, however, recently come to my knowledge that the editor of one of these books endeavoured, but without success, to procure in London an authentic account of British spas. That, at least, was a manifestation of interest, and when I met with another in a request for a sketch of our seaside resorts as an addendum to the German translation of my

little book, "Spa Treatment," and received, further, the generous offer of a French translation of a work on British spas, it seemed to me the time had come to bring the whole subject before the Council of this Section, and to offer a paper, both to elicit criticism from the general body of our members and to enlist their active assistance in the task of making widely known abroad the climatic and balneary resources of Great Britain. Criticism is advisedly placed first; for it is not unlikely that I may, on the one hand, have overlooked strong points in, so to speak, the case for Great Britain; while, on the other hand, if the medical men practising in any of our health resorts are of opinion that there is no room for the introduction of foreigners, I should be disposed, in anything written for Continental journals, to lay little stress on the particular stations considered suitable only for patients of our own nationality.

I think, however, that there can be but few of our professional health resorts which would not find the presence of a cosmopolitan element beneficial. In addition to the cash brought to its coffers (though possibly an almost negligible quantity for some years), an advantage to the station would be that the prospect of a steady increase in the number of patients from a fresh source would stimulate the zeal of the local authorities in effecting improvements: for I believe that in some instances these authorities would be more inclined to give heed to foreign than to native criticism, lay or medical. And, be it said, it is the absence of those amenities which are demanded by foreigners that forms one of the excuses of Britons for their annual pilgrimage abroad. The medical men, collectively, would be conscious of the incentive afforded by wider scope in the fields of scientific investigation and of practical therapeutics. But the watchword for practitioners, no less than for spas, is prestige, and a full measure of prestige will never be gained until British mineral-water stations have added international fame to national repute.

Turning now to another aspect, I think that the writer who desires to trace the lines on which we may proceed to place before the foreigner the advantages of the British Isles for some invalids—and their disadvantages for others—best fulfils his task by abstaining from overmuch refinement, and by confining himself, as far as possible, to statements likely to meet with general acceptance. That must be my excuse for adhering, on the whole, to the conventional, and inclining to the methods of dogmatism. I will begin, then, with the general proposition that when health fails in one set of surroundings common-sense suggests an

entire change; while in its application to my immediate purpose I think attention may be justly called to the fact that in many ways our island differs more from all the Continental countries than do they from each other. It follows, therefore, that in the numerous instances when change of environment is demanded, whether for its own sake or as an adjunct to treatment, balneary or climatic, the health resorts of Albion merit the attention of clinicians in very many lands. And, since our foreign confrères, like ourselves, sometimes fail to obtain sufficient control over patients who remain within motor distance of home or business, it may be suggested that the plan of placing a strip of water between an invalid and his cares is not less advantageous for dwellers on one side of the Channel than on the other.

Passing from the general to the specific, and dealing with the limitations as well as the merits of British spas, it may be taken as certain that not many patients will be sent to them from the European mainland for an intensive bathing course alone, our cool climate not serving as an auxiliary to that form of treatment. Nor will large numbers come solely for a drinking course, since we possess no waters of types which are not well represented on the Continent. Regarded purely from the climatic standpoint, however, every part of Britain has the decisive advantage of being at its best for a special purpose just when most of the Continental stations, and certainly all the spas (unless perhaps St. Moritz), are at their worst. That purpose is active exercise in the fresh air, and that season includes the greater portion of July with the whole of August, the most crowded months of the summer season. Now, it might be supposed that the point I have just made does not deserve so much emphasis, for in England we commonly overlook this aspect of spa treatment. But in Germany and Switzerland conditions which exist compel physicians not infrequently to have recourse to the manœuvre suggested; and I have some reason for thinking that France must shortly follow suit. It is true that foreign spas offer to the enfeebled superior incentives to the less severe forms of physical exertion, but a long and really brisk walk becomes a trying ordeal in the hotter months, even for persons in the best of health. The cooler climate of Britain, on the other hand, favours all kinds of outdoor exercise, including, of course, the best of all—the royal and ancient game of golf.

Taking all these considerations together, we at once perceive that the categories of foreign invalids for whom our spas are typically suitable include those who thrive in a relatively cool climate and are able to walk

well, those who, in association with complete change, derive benefit from baths which are neither very hot nor taken in close succession, and, of course, those whose maladies are held to be amenable to the waters we possess—that is to say, the muriated, sulphuretted, indifferent earthy, and alkaline sulphated. Such waters, as everyone here knows, are well represented, respectively, at Llandrindod, Harrogate with Strathpeffer, Buxton, Bath, and Cheltenham; while there are iron springs at many spas, strong salt water at Woodhall, and brine at Droitwich. All of these resorts are sufficiently well equipped balneologically, and in their different ways compare not unfavourably with the corresponding Continental spas.

There is a charge so often levelled at our spas that it cannot be left unnoticed. Stated bluntly, it is that they are intolerably dull. Denial, admission, or apology must be left to other writers. Comment sufficient for my purpose is that, taking together all Continental spas, there are not more than five which can definitely be described as gay. In a large proportion of the remainder tranquillity reigns. Yet these essentially restful resorts are visited annually by thousands of invalids—by invalids who do not desire the amusements of a great city or the excitement of Monte Carlo. It is from this sufficiently large army of health-seekers that recruits may be drawn for a pacific invasion of our island.

Uncertainty of weather, or, in other words, excessive rainfall, is an apparently more formidable objection; but I would point out that on the European mainland also a spa season may be spoilt by persistent downpour. Such was the case this year throughout the Continent, and last year in the northern stations. It must be admitted that the month of June is more often wet and cold with us than abroad; but in July and August less rain falls in the Eastern division of England than at some of the stations of Western Europe. In the West of England the rainfall is no doubt considerable, but in summer it is not quite the drawback that might be supposed, for during the showers the patient can sit or promenade on a verandah; and even if driven indoors he need not, and should not, close the windows. When proper open-air galleries are erected at British spas, patients coming for a serious cure will be rendered practically independent of rain. The existing structures, known as winter gardens, might well be called summer penances.

As a concluding observation on British spas from an international point of view, I suggest that whereas for Britons they are mineral-water stations with climatic advantages, for foreigners their rôle is rather that of climatic stations with the advantage of mineral waters.

I trust that enough has now been said to establish my contention that our spas may render important services for a goodly number of patients from beyond the seas. When the sketch comes to be filled in, and the specific merits of the separate stations properly defined, it will, I think, be found that their utility stands out in still more marked relief. For that purpose a volume is now under consideration, with authoritative monographs written locally, and the whole collated by whatever chapters may appear to be necessary. Entire candour will, I trust, be the keynote of this work; for spa literature without that quality is fit only for the scrap-heap.

Passing on now to our seaside resorts, I believe them to possess for foreigners many advantages, which, if not so well defined, are even wider in range; these resorts may, in fact, be regarded as alternatives for some Continental spas, as well as for climatic stations, inland and maritime. It has been shown by Frankenhäuser that many of the inhabitants of Central Europe, and especially those who are anæmic, nervous, or scrofulous, suffer in the height of summer from the extreme dryness of the air, which persistently overworks the evaporative function of the skin. He explains that the benefit derived by such persons from a course of spa treatment is largely due to the re-hydration effected by a series of immersions in mineral-water baths. During the bath, and after it, the hygroscopic salts pass into the superficial layers of the epidermis, and remain lodged there; and thus, as he expresses it, the patient becomes clothed in a gossamer mantle of deliquescent salts, which, by checking evaporation from the skin and neutralizing the effects of abrupt changes of temperature, places the overstrung organism in a state of relative physiological repose. This action is supplemented by the air at most of the German spas, rendered relatively moist by afforestation and other factors, while it is carried a stage further by the still greater humidity of the seaside resorts.

Anyone reflecting on Frankenhäuser's carefully-reasoned argument, which, I regret, could only be given in the merest outline here, will, I think, admit that we are entitled to supply, as a missing corollary, that the climate of our island, by its greater humidity and equability, provides, even more effectively, the atmospheric conditions required by the categories of patients to which he refers. It is arguable also that if immersion in mineral water has the influence claimed for it, sea-bathing must be even more potent, for the organic matter in sea-water renders it peculiarly adherent to the skin. One of the reasons for the increase in the number of Germans visiting the coasts of their own country and

Belgium may be the perception of the fact that greater hydration of the skin is effected by the combined influence of sea-air and sea-water than by mineral-water baths taken in the drier air of the German spas, even when assisted by inhalation of atomized salt solutions.

It is unnecessary for my present purpose to enter into a detailed discussion on thalasso-therapy, for I find the opinions recorded in French and German literature to be substantially in accordance with our own. But from the indication list of Thilenius, the most concise I have met with, I should like to subtract migraine and rheumatism, which I believe to be seldom indicated, and rickets, which can scarcely be considered a specific indication. I imagine, also, that most English authorities would agree in the addition to the list of convalescence from acute disease; while I think that we should lay stress on the special benefit derivable in our humid climate by patients suffering from the dry form of respiratory catarrh—a condition frequently met with in Central Europe. The remaining indications given by the authority mentioned are: The scrofulous diathesis, tuberculous disease of bones, joints, and glands, predisposition to phthisis, emphysema of moderate degree, delicacy of the skin, and especially undue sensitiveness to cold, delayed development in childhood, and last, not least, neurasthenia from mental or physical overstrain.

The indication, predisposition to phthisis, calls for comment, since Dr. Gordon has drawn attention to the high ratio of phthisis morbidity in places exposed to strong, prevalent rain-bearing winds. I suggest therefore that, until this phenomenon is explained on other grounds, we should caution our foreign colleagues against sending patients predisposed to the disease to the more exposed of our westerly stations.

Of the sea coast of Britain it is not too much to say that although it is impossible to point to any part which has not in summer an agreeable climate, yet climatic variety is its leading characteristic. Facing every point of the compass, some with scarcely any shelter from the wind, others well protected in land-locked bays, there are towns and villages presenting from June to September a graduated scale of invigorating climates not to be found on any other European seaboard, and surpassed only by the antipodean islands of New Zealand. There are, in addition, some adjacent inland stations where the climate, under modified marine influence, is remarkably well suited for patients who find the coast too stimulating.

The summer climate of our south coast, from a point a little to the south of Margate on the east to Penzance on the west, may roughly be

compared with that of the French coast from St.-Pol-sur-Mer to Roscoff, or perhaps le Couquet; but local factors introduce so many modifications that there is little resemblance between the individual resorts. In winter, however, our best sheltered stations, from Bournemouth westward, owing to their southerly orientation, enjoy a milder climate than those of the French coast opposite. There is no maritime climate in France closely comparable with that of the east coast of Britain, from Margate to the north of Scotland, nor with the west coast, from Weston-super-Mare to the Hebrides. On the other hand, we have none in any way resembling that of the French coast from Arcachon to Hendaye, and still less that of the Côte d'Azur; but these regions, and especially the latter, scarcely come into the count as summer stations, at any rate for northern peoples.

Regarded from almost every other standpoint, the seaside resorts of the two countries lend themselves rather to contrast than comparison. For persons seeking the brightness and particular kind of gaiety of Trouville, we have nothing to offer. They might as well ask for the Alps at Enghien, or the Quartier Latin at Paramé. I do not know, moreover, in England of any little nooks of a type not uncommon in France, and well represented by Pourville. Places of that size are with us usually rough fishing hamlets, and hotels in any way equal to those in France are not to be found. For foreign invalids the most suitable of our seaside stations are these of moderate size. They are described by visitors who like them as dignified, well administered, and offering no form of excitement likely to distract attention from the pursuit of health; by those to whom they do not appeal, and who of course should never have been sent there, as insufferably dull. Eschewed in England by the "fast set," they attract the more sedate of the aristocracy and the steadier members of the professional and commercial classes, and so may well prove intolerable on the one hand, or congenial on the other, to corresponding sections of French society. I should have hesitated to add that the pleasure side of life is so much in evidence at some of the larger French stations that they can scarcely be regarded as serious health resorts for genuine patients, had I not been so informed by French physicians who know them much more intimately than I do.

Between the long and indented coast-line of Britain and the shorter and less varied German littoral not many comparisons can be drawn. Still, it is useful to remember that the mean summer temperature of the southern part of our east coast is about the same as that of the

North Sea island of Borkum; while that of the northern portion finds its counterpart in the island of Keitum. These localities have other features nearly in common, the daily range of temperature on our east coast being only fractionally less, and the hours of bright sunshine rather fewer, while the relative humidity is a little greater. I have not been able to procure the rainfall figures for all the stations, but between Margate and Borkum, which are sometimes compared, I have found a rather surprising difference. In summer, when these stations come into rivalry, the rainfall of Margate is much less than that of Borkum; during the three months of summer the mean rainfall for Margate being 112 mm., and for Borkum 212 mm.; while August, the driest month in the year at Margate with 24·9, is at Borkum, the wettest, with 89 mm.

Of the Baltic resorts I have come across meteorological statistics only for Swinemünde, and it is interesting to note that the figures of mean summer temperature and mean relative humidity agree closely with those of Bournemouth.

In comparison with those of Germany, our coast towns have been longer resorted to for health and pleasure, and so have the advantages of age—with its disadvantages. Some of them are much larger, and the greater preponderance of a population permanently resident lends a more sedate air. Along the sea-front of the more important towns there are many miles of concreted walks, often provided with rain-shelters, and, also, carriage roads of easy gradient. It is, indeed, the stereotyped repetition of a sea-front promenade, designed apparently to illustrate Euclid's definition of a line, that gives the British seaside town its distinctive cachet. It constitutes a feature of psychic as well as physical import, for not even the attraction of bands and minstrels can bring together, at the same time and in a limited area, a concourse of people sufficient to create a scene of animation such as we see in foreign health resorts. At the hotels, even when a *chef* presides, cookery is modified to suit insular taste, and the made dishes resemble somewhat those at the *tables de régime* of Continental spas.

More space than is taken up by the whole of this paper would be required for a study of the medical climatology of our east, west, and south coasts. That is a task which I hope to see attempted in the near future, and I would merely point out that whoever undertakes it, if he endeavours to view the subject through foreign glasses, will, necessarily, give some indications which would not hold true for English people. I have observed, when treating foreigners in London, that the sick-room temperature must usually be kept from 1° C. to 3° C. higher than

would be tolerable to English patients. The explanation of this difference is, I suppose, that the winters on the Continent being longer and colder, more efficient methods of domestic heating have been adopted; while the summers being uniformly warmer, the body is exposed during the greater part of the year to a higher mean temperature. For that reason, I believe that some of our winter stations will be found to be typically suitable in the height of summer for many Continental invalids, the more delicate being directed to the south coast, though, if delicacy is associated with a fair degree of physical activity, the west coast should be given the preference. Thus the word "relaxing," hitherto dreaded as a death sentence, may be changed into "sedative," and prove a passport to renewed prosperity. When the foregoing principles come to be applied in practice, it will be found that foreign invalids may, with advantage to themselves, be sent to some of our stations just at the time when Britons are accustomed to desert them—a fortunate circumstance, for during the official season there is often little room for additional visitors.

The western section of the south coast would seem to me to be well adapted for patients suffering from simple catarrh of the upper air-passages, after a course of intensive treatment at Ems or Mont-Dore. It would be on the safe side to represent the east coast as a summer playground for the fairly robust, or, using the word in a wide sense, as a "preventorium." Certainly there is no better preparation for the rigours of a winter in Northern Europe than a month in autumn spent on almost any part of our east coast.

Since the coast-line of Britain presents an almost continuous chain of summer health resorts, reasons might be offered for mentioning the greater number of them for the purpose indicated by the title of my paper; but, even from a severely restricted selection, I submit that the following, taken in geographical order, could not well be omitted: Felixstowe, Cromer, Margate, Hastings, Eastbourne, Ventnor, Bournemouth, Sidmouth, Torquay, and Tenby. Happy is the writer or speaker who is not called upon for a full enumeration, or to distinguish between the claims of so many famous places; for so fiercely burns the flame of local patriotism, that whereas by commendation few friends are gained, by criticism a harvest of enmity is reaped.

I have left insufficient space for characterization of the inland climatic stations—and you will readily forgive the omission. But, if this communication should fall into the hands of any of our foreign colleagues, I will ask them to accept the assurance that in Britain, from

John o' Groat's to Land's End, it would be difficult to find an ugly district or one not typically healthy in summer, and that at the same season, for the ideal of air bracing, yet not devoid of sedative qualities, there are few places in the world superior to Hindhead, Crowborough, Church Stretton, Ben Rhydding, and Okehampton in England ; Braemar, and countless others, in Scotland. Strict regard for truth compels me to add that in these places amusements, in the Continental sense of the word, are non-existent. No foreigner should go there who does not speak English well ; he should take with him golf-clubs, and faithful friends.

Dealing throughout this paper with general considerations, there remains one with which I will bring it to a close. The Germans, true to Teutonic tradition, wander abroad each year in larger numbers. They go to Italy for winter warmth, to the Netherlands for sea-bathing, to Austria and Switzerland for mineral-water treatment, but not very frequently to France for any of these purposes. Our French neighbours are not quite so enterprising, but they, too, are beginning to show appreciation of the benefit derived from change to other lands. Switzerland is their chief outlet; but Switzerland is already overcrowded, and is tending to become chiefly a rich man's country. Americans I have not referred to—we scarcely regard them as foreigners. They rush through our country as tourists, and have "discovered" some of our health resorts. Physicians in all of these countries are seeking fresh territories for their patients. There could be no better time than the present for informing them of the climatic and balneary resources of Great Britain.

In writing this short sketch I am well aware that I have but touched the fringe of a great subject. I shall be satisfied if, by anything I have said, the interest of foreigners is stimulated in our island as a health resort and summer playground; and, still more, if British physicians are induced, filling the wide gaps I have left, to present to the world in a fresh light the splendid climatic and mineral-water stations of their own country.

## DISCUSSION.

Dr. J. LIDDELL (Harrogate) said that the resources possessed by English spas and health resorts were little known to foreigners, and he agreed that some means ought to be taken to correct this state of things. A publication might be issued giving particulars of each health resort as a guide to foreign practitioners.

Dr. A. MANTLE (Harrogate) remarked upon the fact that the British spas were but little known in America and Canada, but many Americans frequented Carlsbad and other European spas. He thought that the advantages of the British spas might be brought to the notice of the profession in America.

Dr. HOWARD HUMPHRIS, who had practised for ten years in the United States, agreed with Dr. Mantle. There was a more than kindly feeling towards England in the profession in America, and they would, no doubt, avail themselves of the British spas if they were made acquainted with them.

Dr. FORTESCUE FOX referred to the individuality of the spas, both British and foreign. Each had their own place. No doubt the cooler and more northern resorts of our islands had certain climatic characters of which our medical colleagues abroad were, for the most part, unaware. If such facts were not fully appreciated the science of climatic and balneological treatment would suffer. He welcomed any suitable proposal to extend the knowledge of the British resorts amongst the medical profession at large. Medicine could not be insular or narrow.

# Balneological and Climatological Section.

January 27, 1911.

Dr. T. Fred Gardner, President of the Section, in the Chair.

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## Osteo-arthritis and its Relation to Chronic Rheumatism.

By Charles W. Buckley, M.D.

In the "Nomenclature of Diseases," published by the Royal College of Physicians (edition 1906), chronic rheumatism finds no place, and under the general heading of arthritis are included synovitis—acute, chronic, and infective; gonorrhœal rheumatism coming under the latter heading, and osteo-arthritis, which has as synonyms rheumatoid arthritis and arthritis deformans, and as special forms malum coxæ senile and Heberden's nodes. Besides these there are enumerated tuberculosis, syphilis, gout, and hæmophilia as conditions which may give rise to distinct forms of arthritis. From this it will be obvious what strides have been made in recent years in the study of this complex group of conditions, and in a subsequent edition osteo-arthritis, among others, must take a subordinate place, if indeed it deserves to retain a place at all as the name of a specific disease. Under this designation have been included a variety of disorders of joints having only in common the fact that, in their later stages, there is bony change in one form or another. My object, on the present occasion, is to attempt to differentiate some of these disorders, and to plead for a more satisfactory classification which shall be less liable to lead to confusion and to a wrong conception of their pathology and treatment.

Osteo-arthritis, as at present understood, is a disease which may be either confined to one or a few joints, or may be generalized. According to the stage of the disease different conditions will be found

on opening the joint: in the early stage, hyperæmia and swelling of the synovial membrane, which may go on to fibrous thickening and hypertrophy of the fringes; in later stages the cartilage may have lost its shiny appearance and formation of osteophytes has begun, and in extreme cases denudation of cartilage and eburnation and grooving of the articular surfaces may take place, with excessive bone formation at the margins of the joint. These conditions and the detailed symptoms are all described at length in the text-books on the subject, and I need not dwell upon them here. I merely wish to emphasize that the bony changes are regarded as the essential pathological features which link all forms together, and, later, to point out that many cases diagnosed as osteo-arthritis never reach the stage of bony change, and those that do spring from many pathological beginnings essentially diverse.

Now bony formations in and around the joints have been observed as the result of pneumococcal, gonococcal, and typhoidal infections (Llewellyn Jones) [9], but as Goldthwaite [5] has pointed out, these formations take place at the point of infection, wherever that may be, but not at the margin of the cartilage, as is the case with other conditions, Nevertheless, they are undoubtedly osteo-arthritis if bony changes are the essential feature of the disease, as its name implies. Again, the arthropathies furnish extreme examples of bony new formation, but Turney [12] has pointed out as an essential difference that in the arthropathies the changes commence in the bone, but in osteo-arthritis they originate in the cartilage; he also observes that hyperæmia of the synovial membranes with villous hypertrophy is an early change, and loose bodies are almost constantly present; in fact, that all the lesions described as characteristic of osteo-arthritis are found in the arthropathies, the distinction being chiefly a clinical one. It is worthy of note that so eminent an observer as Virchow insisted on the identity of Charcot's disease with osteo-arthritis. As I shall point out later, two essential causes are acting in all such conditions—namely, increased vulnerability of the tissues of the joint and trauma, with the result that repair is attempted by the formation of new bone.

Wickham Legg [11] has pointed out that in hæmophilia, osteo-arthritic changes may develop as a result of repeated hæmorrhages into the joints. Hoffa [8] has traced osteo-arthritis of the hips and knee to previous tuberculous disease of the same joints, and Borchardt [2] has recorded three cases of osteo-arthritis of the hip and knee in young subjects, due to osteo-myelitis, and both these observations have been supported by others.

The relation of gout to osteo-arthritis is of greater importance, and it is certain that a large proportion of cases diagnosed as osteo-arthritis are due to gout, the use of the X-rays having revealed the existence of uratic deposits at the same time as marked formation of osteophytes and other bony changes, and in cases where uratic deposits are not shown in the joints, the same characteristic conditions, such as the presence of Bruce's nodes, are found, together with the presence of tophi in other situations, or a history of gout in more typical form. Fuller [4] first pointed out the association of uratic deposits with osteo-arthritis, and this has been confirmed by many observers. In this form of osteo-arthritis the cartilages often suffer to a considerable degree, while erosion of bone is seen in some types of the disease as in the skiagraphs which I submit. Goldthwait [6], it is interesting to note, regards gouty osteo-arthritis as less common than other forms, but Painter notes that erosions are of different type in gouty osteo-arthritis from those in some forms. Such a case (fig. 1) came under my observation some years ago, with no history of gout, but presenting thickening and enlargement of the knuckles, more especially the phalangeal joints, and inability to close the fist from the stiffness produced. He was of temperate habit, but lived on the shores of one of the Lakes and was frequently exposed to severe weather. The case was sent to me as one of chronic rheumatism, and I saw no reason for altering the diagnosis, having at that time no access to the X-rays, but in spite of the improvement he experienced on his various visits to Buxton the general trend of the disease persisted, gradually affecting other joints, slight grating in the knee-joints being next noted and later stiffness of the elbows and enlargement of the carpal ends of both ulnar and radius. To all appearance it became a typical case of generalized osteo-arthritis, with absolutely no evidence on ordinary examination of uratic deposits. The second case (fig. 2) shows even more typical osteo-arthritic changes, but is of a type more readily diagnosed as gout owing to the chalk stones which came away at different times, although there were none visible at the time of the photograph, and the fingers were quite thin. The wrist, elbow, and ankle were ankylosed, and there was soft creaking of the knees. These osteo-arthritic changes in gout are more commonly met with in the hands and feet than in the larger joints, and small nodes or bony deposits are frequently found on the sides of the phalanges. The changes produced by gout may sometimes so closely resemble rheumatoid arthritis, and in other cases so-called osteo-arthritis, that they can only be distinguished in the light of the clinical history, while

it is probable that no condition is more frequently regarded as chronic articular rheumatism than chronic gouty arthritis.

When all conditions of definite ætiology have been excluded there still remains a large group of cases which are generally diagnosed as

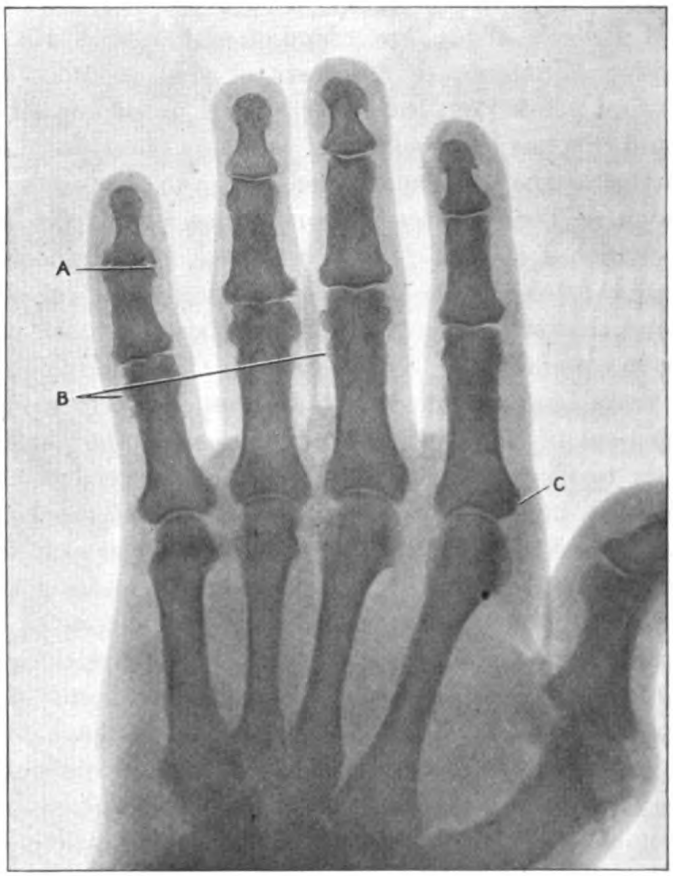



FIG. 1.

Chronic gout of about five years' duration. No acute attacks. Onset insidious, no other sign of gout. Stiffness and enlargement of joints, with inability to close the hand. **A** and **C**, early erosions of bone; **B**, Bruce's nodes.

osteo-arthritis, or popularly as chronic rheumatism. These cases generally begin in the knees or finger-joints. The only causes which can be traced are increased vulnerability of the joint, which may arise from heredity or from some modification of the blood supply, and unfavourable climatic conditions, wear and tear, or slight trauma.

Possibly to these causes may some day be added the influence of definite toxins of which as yet we have no precise knowledge, and the influence of such internal secretions as those of the ovary or thyroid gland may have some bearing on the question. It appears certain that the thyroid

FIG. 2.

J. C. M., aged 67, painter. Sister had rheumatic fever. Sudden onset of typical gout at 25, second attack two years later, and since then two or three attacks per annum, each attack leaving him more crippled. Has got many pieces of chalk from middle joint of fingers. Chief joints affected are wrists and all joints of hands, hips, knees, ankles and feet. Wrists and ankles ankylosed, severe pain in hips, soft creaking in knees. Skiagram shows ankylosis of mid-phalangeal joints of fingers, atrophic changes in terminal joints of middle finger. Atrophy of heads of metacarpal bones.

has some influence, and that the action of certain remedies, and especially of mineral waters, may be upon such secretions, and thus indirectly upon the joints, as Dr. Leonard Williams [14] has suggested.

Modification of the internal secretions of the ovary has been suggested by Dr. Llewellyn Jones [10] as a possible explanation of the fact that women at the menopause are especially liable to this form of chronic arthritis.

Just as a condition of the tissues may be inherited which predisposes to tubercle, and perhaps to cancer and other diseases, so I think that few will deny that a type of joint may be inherited whose power of resistance to wear and tear and the attacks of disease is diminished. A definite history of rheumatic fever in parents or near relatives may be regarded as evidence in this direction, or a history of a near relative who has been affected by any form of crippling arthritis. Modified vascular supply may be either local or general; locally the best example is that of varicose veins, which appear to render the joints of the lower extremities, and especially the knees, liable to trouble; repeated pregnancies appear to have the same effect, even in the absence of varicose veins. General weakness of the circulation and arteriosclerosis are examples of conditions which tend to lowered resistance in the joints, as in other structures. The importance of arteriosclerosis as a cause of osteo-arthritis has been pointed out by Billroth, Tessier, and other authorities; it is probably the most important cause of malum coxæ senile, but can rarely be a factor of moment in osteo-arthritis occurring before fifty. The influence of trauma in predisposing to diseases of the joints affected is generally admitted, but I think it is not so generally recognized that ordinary wear and tear may equally produce morbid conditions of the joints if there are predisposing causes present. The amount of work thrown upon the knees in going up and down stairs is considerable, and accounts for the frequency with which they are the only joints affected, and the occurrence of Heberden's nodes points to the influence of strain, a point to which I shall have occasion to refer again. The influence of unfavourable climatic conditions is made evident by the frequency of chronic arthritis, and of muscular rheumatism and other forms of fibrositis among those who live in damp situations, and especially in houses where, owing to the absence of cellars or properly ventilated basements, ground damp has access to the living-rooms, and cases have been known where rheumatic disorders have been endemic in particular houses until this defect has been remedied. The frequency of swollen and distorted knuckle-joints among labourers and charwomen is probably due in some measure to their hands being frequently wetted in the course of their occupation.

Having thus briefly referred to the causes of some of the diseases

classed as osteo-arthritis, it is necessary to point out some of the features of the cases included in the last group, in which there is no evidence of any cause beyond those general ones which have been described. The joints most commonly affected are those of the fingers and the knees, and less frequently the hips, the symptoms differing slightly in each case. In the knees there is moderate swelling and stiffness on movement, with grating or fine crepitus. The swelling, which is not a constant feature and is never great, is due to hypertrophy of the synovial membrane and peri-articular thickening, and there is little or no effusion unless some trauma has given rise to a superadded synovitis from nipping of the hypertrophied villi. Bony changes are, as a rule, slight and not infrequently absent, the most common being the formation of small osteophytes from the patella. This osteophytic formation is well shown in the group of photographs which I submit from cases of varying cause and duration (fig. 3).

In the hips, from the formation of the joint, a much greater degree of disablement is quickly set up by the formation of osteophytes, as will be seen from the skiagram, which shows development of osteophytes around the articular surface of the head of the femur. The patient was a man who did a good deal of riding, and the earliest symptom was inability to remain in the saddle for long owing to the pain in the trochanter, across the groin, and down the adductor tendon. He was 50 years of age and showed no evidence of arteriosclerosis or gout (fig. 4).

In the fingers, owing to the less amount of synovial membrane, advice is generally sought on account of the stiffness and the unsightly appearance produced by the formation of Heberden's nodes. The terminal joints are first affected, and the finger which is most used is the first to suffer.

There is thus, I believe, in the case of the knees, a chronic synovitis in the early stages, and in the case of the fingers a thickening of the capsule due to a fibrositis suggestive, in the light of the influence of damp and cold in its causation, of the fibrositis which is the essential feature of muscular rheumatism. The bony changes in all joints are, I contend, entirely secondary, and represent an attempt at repair and compensation. Spondylitis deformans presents an important analogy; as the disease progressively weakens the ligaments and destroys the intervertebral disks, an ossification of the ligaments—particularly the anterior common ligament—takes place, at least in some forms, and a sort of scaffolding is erected to protect the spinal cord and other important structures, which would suffer if the rigidity of the column were impaired. A case is

## DESCRIPTION OF FIGURE 3.

(A) From a woman, aged 54; history of injury to right knee sixteen years ago, and also of rheumatic fever. The only joint now affected is the right knee. Six years ago a skiagram showed no loss of cartilage, but there was a small osteophyte at the patellar margin. Now the osteophytes are more extensive, and there is distinct loss of cartilage. The case illustrates the influence of trauma plus increased vulnerability.

(B) From a man, aged 60, who had a typical attack of gout forty years previously, and showed many tophi. Almost all the joints had been affected during the last forty years. The patella shows well-marked osteophytes, and is a good example of such changes occurring in gout.

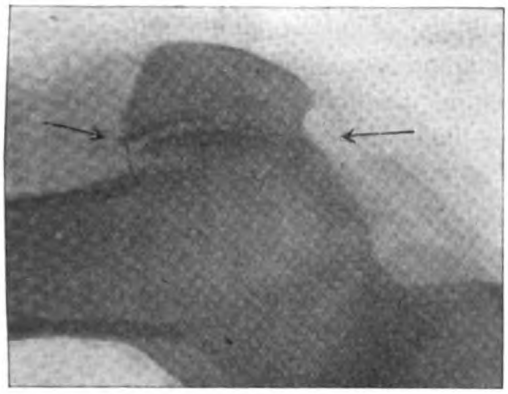
(C) From a woman, aged 35, of the leisured classes: she had had eight children and two miscarriages; all the confinements appeared to have been normal, and there was no indication of any source of infection, genital or otherwise. The knees had been stiff for some time, but definitely so with fine grating for about eighteen months; latterly there had been some slight stiffness and discomfort in the ankles. There was a history of gout in her family, and of muscular rheumatism, but it was very indefinite. The case appears to illustrate the influence of repeated pregnancies plus ordinary wear and tear, with perhaps some hereditary predisposition.

(D) From a woman, aged 40. Onset gradual in the knees; pain was the chief feature. No other joints affected; one year's duration. Her mother had rheumatoid arthritis. In general character the case is similar to the preceding one.

(E) From a woman, aged 41. Onset subacute with pain in knees, elbows, and hands. The left hand now shows atrophic changes as contrasted with the hypertrophic changes in the knee-joint, which has a well-marked osteophyte at the inferior border of the patella. The patient improved considerably after removal of some decayed teeth. The case shows osteo-arthritic changes in a case otherwise typical of rheumatoid or infective arthritis. Painter states that osteophytes do not occur in infective arthritis (*Johns Hopkins Hospital Bulletin*, 1904).

These cases have been grouped together to show the development of osteo-arthritic changes which, while arising from different causes, are practically indistinguishable so far as these joints are concerned.

[For the photographs, A, B, D and E, the author is indebted to Dr. Burt.]



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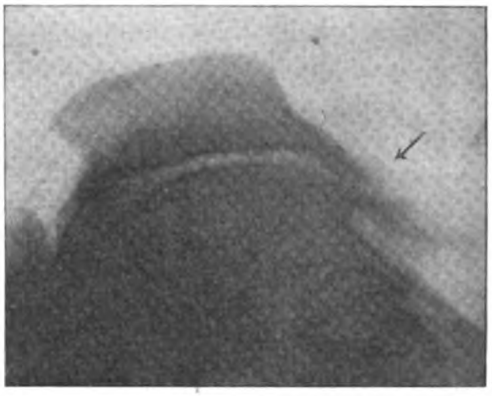

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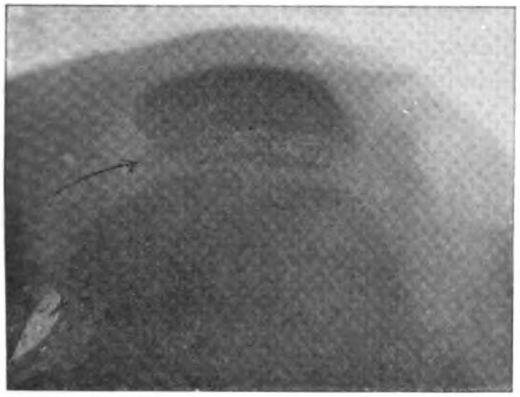

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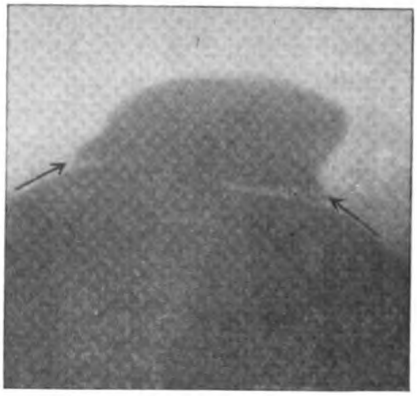

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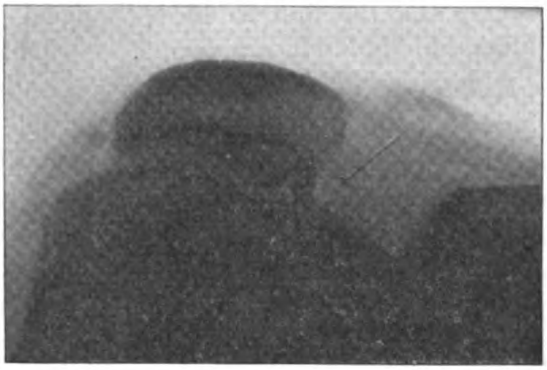

E

FIG. 3.

recorded by Warrington [13], in which the spinal symptoms were associated, in their onset with swellings of other joints, the latter cleared up, but the rigidity of the spine remained, pointing out, as it seems to me, that the importance of the vertebral column led to much earlier bony changes than were likely to occur elsewhere. Marie and Leri also regard this ossification as secondary change, compensatory in nature, imparting rigidity to the yielding column.

That in such cases as Charcot's disease the bony overgrowth is so excessive, and purpose is less apparent, is due to disorder of the trophic nerves. The fact that in the knees the changes take place at the margin of the joint indicates an attempt to secure rest by promoting rigidity through the formation of a bony splint, but from the form of the articular surfaces, the attempt cannot succeed. In the fingers there is no necessity to protect other structures, as in the case of the spine, and no weight to support, as in the knee, but, on the other hand, there are varying stresses to be met in the process of using the fingers, and if they were not met we should find hyper-extension, as in rheumatoid arthritis, from pressure on the tips in use and overaction of the extensor muscles. Whereas lateral deviation is the usual deformity in cases of this kind, and is due to the fact that, the nodes supporting the joint on its extensor aspect, the lateral action of the muscles comes into play more obviously, and the saddle shape of the articular surfaces of the metacarpal bones, where the deviation occurs, favours this.

Burt [3] was among the first to draw attention to this view of Heberden's nodes and points out that they invariably develop where the strain is greatest, laying stress on the effect of occupation in this respect. To this Adams [1] has also called attention in a series of cases of arthritis arising in dressmakers working in heavy stuffs, the thimble finger being in every case the first to show changes. Examples might easily be multiplied, but time will not permit, and I think that these few notes will show that the point is worthy of consideration. The conclusion I have formed from my own observations, as well as those referred to, and to which I wish to direct your attention, is that Heberden's nodes, under whatever circumstances occurring, are in no way evidence of a specific disease, as suggested in the "Nomenclature of Diseases," but merely compensatory and designed to give additional strength where needed (fig. 5). That in so doing the original object may be missed, and stiffness and deformity result, is no argument against this view. In the knees and other joints the same is true of peripheral overgrowth; but intra-articular changes and enlargement of the articular ends of the

bones may be, and often are, due to direct irritation. While grooving and eburnation are mainly the outcome of mechanical causes, they are, however, rarely met with in the type of case to which I am referring, in which there is no definite infection or evidence of other than physical causes, and when they arise, arteriosclerosis is probably an important factor, as in malum coxæ senile.

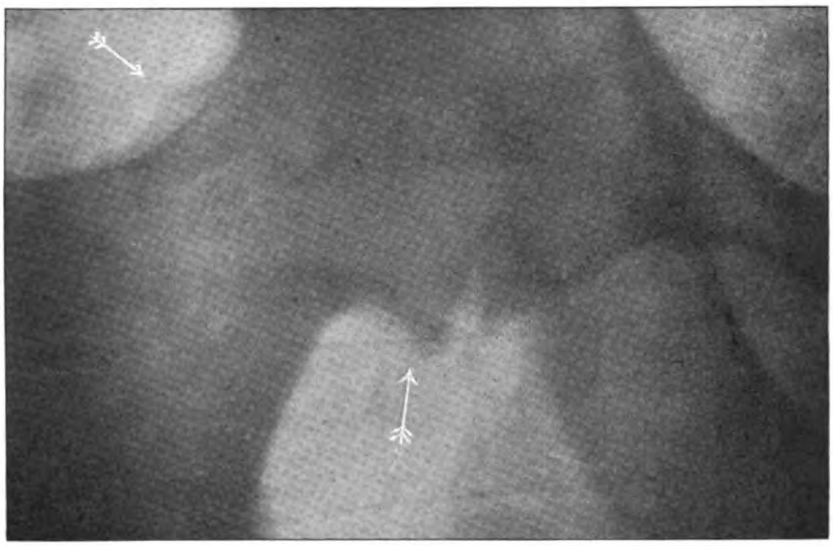

FIG. 4.

Chronic arthritis of hip, probably traumatic in origin. Well-marked formation of osteophytes. Man, aged 50; no sign or history of gout.

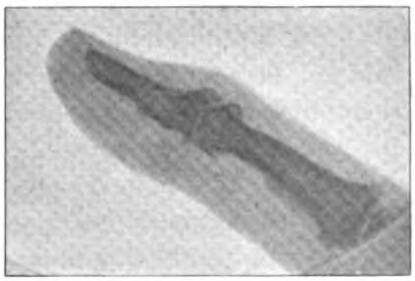

FIG. 5.

Heberden's node, in a woman aged 58. No symptoms or signs of gout or rheumatoid arthritis. Has done and still does a great deal of needlework. Only the right and left index fingers show nodules.

The conclusion which I have endeavoured to lead up to is that since the bony changes are only indirectly due to the disease which is primarily a chronic inflammation of the synovial membranes and the joint capsules, the name osteo-arthritis is one that should be abandoned. American observers [7] have divided the cases into two groups, applying to the one the term chronic villous arthritis and to the other hypertrophic arthritis. To the former belong cases in which synovial changes are the main feature, thickening and hypertrophy with formation of villi, the condition which is so frequently met with in the knee-joints of women about the menopause, and in which grating or fine crepitus on movement, with some stiffness, are the prominent features. Other joints may be affected similarly, the differences depending upon the amount and arrangement of the synovial membrane; bony changes are very slight, small osteophytes from the margin of the patella, and Heberden's nodes being examples. It has been stated that bony changes do not occur in this type, but this is contrary to my experience, which is as stated above. I regard the case shown in fig. 3, C, as a good example. Hypertrophic arthritis comprises those cases in which bony changes are more conspicuous, and in which the cartilages are probably always affected in some measure; the condition is more commonly met with later in life, and malum coxæ senile is a good example. There is much to be said for this classification, which does away with the idea so prevalent that the grating in the knee-joints referred to is due to bony change, as is suggested by the name osteo-arthritis, whereas it is entirely caused by friction of the thickened and hypertrophied synovial fringes.

There is no doubt that chronic villous arthritis is the condition to which the name chronic articular rheumatism is most frequently applied, and its use is not confined to the laity, being not uncommon in our own profession, and it is worthy of consideration whether, in view of its widespread use, it should not be adopted. It certainly brings into line conditions having as their chief ætiological features exposure to unfavourable climatic conditions, wear and tear, trauma, &c., conveys the idea of pain and stiffness, and connects them with that form of fibrositis known as muscular rheumatism. The drawback is the possible confusion with rheumatic fever, but I do not think this is a serious objection, the characters of that disorder being now so well defined, and it is to be regretted that some name indicating its specific infective origin cannot be substituted for "rheumatic."

I do not, however, propose to enter into any further discussion on

this point now that I have indicated the conditions to which the name chronic rheumatism is commonly applied, in addition to those which are clearly related to rheumatic fever. My principal object has been to point out the inappropriateness of the designation osteo-arthritis, which is merely a description of a pathological state which may be arrived at by many routes, and to urge the necessity of a reorganization of the nomenclature of this group of diseases. With this end in view I have brought the subject to the notice of this Section, which comprises a greater number of authorities upon chronic diseases of the joints than any other society with which I am acquainted.

REFERENCES.

[1] ADAMS. *Boston Med. and Surg. Journ.*, 1907, clvii, p. 859.
[2] Quoted by LLEWELLYN JONES.
[3] BURT. *Med. Chron.*, Manchester, 1910, 4th ser., xviii, p. 223.
[4] FULLER. "Rheumatism, Rheumatic Gout, and Sciatica," 1860.
[5] GOLDTHWAITE. Quoted by LLEWELLYN JONES.
[6] GOLDTHWAITE and PAINTER. *Johns Hopkins Hosp. Bulletin*, 1904, xv, p. 251.
[7] *Idem.* Loc. cit.
[8] Quoted by LLEWELLYN JONES.
[9] JONES, LLEWELLYN. "Arthritis Deformans," 1909, p. 230.
[10] *Idem.* Loc. cit.
[11] LEGG, WICKHAM. "Hæmophilia," 1872.
[12] TURNEY. Allbutt & Rolleston's "System of Medicine," 1910, vii, pp. 79-119.
[13] WARRINGTON. *Med. Chron.*, 1906, 4th ser., x, p. 343.
[14] WILLIAMS, LEONARD. *Proc. Roy. Soc. Med.*, 1910, iii (Baln. Sect.), p. 9.

## DISCUSSION.

Dr. BURT (Buxton) said that in such a condition as Heberden's nodes, the formation of osteophytes was merely a compensation change. It seemed unreasonable to call such conditions osteo-arthritis if this was only a secondary change.

Dr. MOUILLOT (Harrogate) believed that the differential diagnosis of the different forms of arthritis was of great practical importance, as many patients' lives were made miserable by a diagnosis of rheumatoid arthritis on very insufficient evidence, sometimes the only symptom being a creaking of the knees. He related cases showing how one form of arthritic disease was added to one already existing, such as gout, or rheumatic fever, or rheumatoid arthritis.

Dr. LEONARD WILLIAMS said that it was probable that the joints were, if not excretory organs, then elaborating organs enabling some materials to be

more easily excreted. From the sex incidence of such diseases as gout and rheumatoid arthritis, it was reasonable to suppose that the organs peculiar to the sexes—the testicle and the ovary, and the internal secretions—were primarily responsible for the diseases in question.

Dr. ERNEST YOUNG suggested that members of the Section should make careful clinical notes of these cases for the next two years. The collective evidence which might thus be obtained would form a far more satisfactory basis for classification that than which existed at the present time.

Mr. MAHOMED (Bournemouth) suggested that a Committee of the Section should formulate, describe, and illustrate types of joint trouble, and submit them to a future meeting. The acceptance of clearly defined types, such as arthritis (1) villosa, (2) neurotica, (3) atrophica, would clear the ground.

Dr. BUCKLEY, in reply, welcomed the suggestion that members should make careful observations of cases coming under their observation during the next year or two, with a view to further discussion of the subject. Chronic villous arthritis had come under the notice of surgeons who had in some cases opened the knee-joints and removed the hypertrophied synovial membrane. He had seen one such case at a later stage, and was not enamoured of the result. He differed from Dr. Leonard Williams as to the frequent occurrence of rheumatoid arthritis at the menopause; he believed the majority of cases, at east of the more typical form, commenced much earlier; the cases arising at this period were more commonly chronic villous arthritis and chronic gouty arthritis, though other signs of gout might not be readily found.

# Balneological and Climatological Section.

March 1, 1911.

Dr. T. Fred Gardner, President of the Section, in the Chair.

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## The Climatic and Balneological Treatment of Neurasthenia.

By W. Ringrose Gore, M.B.

When asked to open the debate upon the balneological treatment of neurasthenia I felt that my opportunities for discourse were very limited if confined to the actual relation of hydrological to other methods of treatment. Balneological treatment, although effective in removing the cause in most cases of neurasthenia, is still only a part of and complementary to other methods.

It hardly comes within my province to go into the details of the general treatment of neurasthenia, such as the recommendation of open-air life, the provision of suitable food, the removal of mental worry, or of relief of any obvious source of toxic infection, such as a septic state of the mouth. Balneological treatment means a great deal more than baths or the drinking of waters. There is no disease in which it is more necessary to study the individual; one needs encouragement, another restraint.

The indications for guidance in such matters as the regulation of exercise, rest and diet, the provision of mental occupation, or the prescribing of accessory methods of treatment, such as massage, vary in each individual case, and misapplication of any one of these may make treatment a failure. One of the most important factors in the treatment of neurasthenia is time; many failures result from non-appreciation of this fact. Neurasthenia is usually a disease slow and insidious in its development; it often occurs in people who are subjected to mental

stress and who are dependent upon their work for their livelihood. Such patients are naturally worried by their absence from work: they feel that it is imperative for them to get well quickly. When they find that improvement is slow they get depressed, and, as recovery is retarded under these circumstances, one is inclined to cheer them up by saying that they will soon recover. This is a mistake. It is better to state at once the time required and so save them from the sickness of hope deferred. One sees this so much in spa practice. A patient comes, expecting that the change of air and a short course of treatment will soon put him right. If he is not well at the end of a few weeks he is naturally depressed and makes little allowance for the improvement really effected. It is most important in these cases to tell patients that time is required for their perfect recovery, assuring them at the same time of the certainty of their ultimate recovery. Again, many patients suffering from neurasthenia arrive at a spa in quite an unfit state of health to be subjected to the necessary regime. They may be physically too debilitated; they may not be equal to the exercise, however slight, that usually forms part of spa treatment. This class of case requires rest in bed or on a couch (preferably in the open air), combined with massage and careful dieting. This preliminary treatment is most essential if a lasting cure is to be obtained. It can usually be carried out at the spa selected before the actual balneological treatment is commenced, but it is in these cases that the time difficulty frequently arises, as so many of these patients consider anything but active treatment a waste of time.

A class of neurasthenics who do well with spa treatment, but who are often recommended it at a wrong time, are those in whom neurasthenia is dependent on some chronic abdominal disease such as gallstones, chronic appendicitis, or abdominal displacements, which require relief by operation. The operation removes the original cause of the neurasthenia, but the neurasthenia has by this time become a separate disease, and not only persists after the operation, but is frequently aggravated by the shock of the operation. In some cases the actual shock seems to establish the neurasthenic condition into a permanent one, and the patients are then sent to a spa for treatment. It would be much better if these neurasthenics were subjected to spa treatment before instead of after operation; their mental and physical condition would be improved, and they would be much better able to withstand the shock which an operation under these circumstances entails. Some of the worst cases of neurasthenia are seen in patients who have never

recovered from the shock of an operation performed while they were still in a markedly neurasthenic condition.

Practically all cases of neurasthenia have a toxic basis, and it is estimated that most cases are due to, or are accompanied by, some digestive trouble; and further that the majority of these recover when the digestion is restored to normal. This is the group of cases which derives most benefit from properly regulated internal hydrological treatment. Impaired digestion creates a vicious circle, for imperfect digestion leads to imperfect nutrition; imperfect nutrition prevents the recovery of the weakened nervous system, and weakened nerve centres mean lowered vitality and impaired bodily functions, including those of digestion. As long as nutrition is impaired no case of neurasthenia can recover. It is in such cases that properly regulated spa treatment is of such great value, and it will often cure those cases which are caused by, or kept up by, digestive disturbance. There is no other means by which digestive derangement can be so quickly corrected and nutrition improved. The patient, being away from home, is more amenable to dieting and is, generally speaking, better under control. He should be thus under perfect conditions for improving his general health and thereby restoring tone to the weakened nervous system, apart from any special treatment.

In this debate I hope I shall get contributions from colleagues practising at our different spas, and I will therefore confine my remarks on internal hydrological treatment to the form which I find of most use at Llandrindod Wells. The external methods of treatment are common to those in practice at most spas.

The methods we use at Llandrindod Wells are calculated, on the one hand, to improve digestion and consequently nutrition, and on the other hand, to cause the elimination of those toxic and effete products, the circulation of which in the blood keep up the symptoms of neurasthenia. The source of these toxic substances is often indefinite, but in a very large number of cases they obviously arise in the digestive canal.

The usual internal treatment at Llandrindod Wells consists in drinking a saline water early every morning. The action of this saline water, as I conceive it, is, in the first instance one of gastro-intestinal lavage, this being dependent on the physiological fact that the stomach absorbs water only to a very limited extent (for practical purposes not at all). All fluids entering the stomach are brought into a state of dilution isotonic with the blood, either by the addition or abstraction of solids, before they readily pass the pylorus. The saline water at Llandrindod

being almost a normal saline solution, readily passes through the stomach, provided the latter be empty, and enters the duodenum, where it is partly absorbed and partly passes onward through the intestine, acting as a mild aperient owing to the stimulating action of the salt on peristalsis: as it does not cause any flow of serum from the bowel its aperient action is not in any way debilitating. The saline flows through the stomach almost as quickly as it is taken, and I have passed a stomach tube twenty minutes after three pints of saline water have been drunk, and have found the stomach empty. This treatment, of course, presupposes a stomach empty of food residues in the morning. The action, then, is one of gastro-duodenal lavage, by which the stomach and upper part of the intestinal canal is douched out with a normal saline solution every morning. The effect upon nutrition and the relief of most of the gastric symptoms are very rapid: the appetite increases, digestion improves, and the patient on appropriate diet almost immediately puts on weight. The gastric condition in neurasthenia is usually one which, for the want of a better term, may be called gastro-intestinal catarrh. There is an alteration of the digestive secretions, which do not perform their functions efficiently: there is also an increase of the indol derivatives to be found in the urine, showing that there is an increased bacterial decomposition of food in the upper intestinal tract, and consequently an increased absorption of bacterial toxins.

We know that the most effective antiseptic for mucous membrane is a normal saline douche; it removes irritating matter, and restores to the mucous membranes the inhibitory power over the growth of bacteria that they normally possess. In chronic nasal catarrh a normal saline douche is the most efficient remedy, but no one seems to think of using the stomach as a funnel by which a douche can enter the intestine. The effect of this treatment is often very striking, and the improvement in nutrition and the increased appetite seem to give the first lift towards recovery.

In combination with the above treatment the chalybeate spring, which contains a small quantity of iron, is also prescribed for its tonic effect. There is in the use of natural mineral waters an as yet unexplained effect. I refer to the influence of their constituents upon the body cells. This has been ascribed to radio-activity, but I think that it is in some way due to a renewal of the salts in the blood by others in a more active chemical condition. We know the remarkable power the injection of sea-water has upon the nutrition of children, and in much the same way salts in our mineral springs probably stimulate

the body cells to increased energy. This seems actually to be the case, as the medicinal power of mineral waters is to a great extent lost very soon after they have been drawn from the spring.

The external balneological treatment of neurasthenia requires great care. The idiosyncrasy of the patient requires here even more careful attention than in the internal treatment, because individual neurasthenics react so differently to external agencies. The use of the direct electrical current has in my experience proved disappointing, but high frequency currents have a stimulating effect for a time, and are helpful in many cases.

Alternating hot and cold douches to the spine have a good effect in many cases, especially in men, and a Vichy douche at a moderate temperature is in suitable cases, usually in women, also of benefit. A needle spray of rapidly alternating temperature is a simple and effective method of obtaining a marked skin reaction, and reclining baths at various temperatures may also help in the same way.

The object of external balneological treatment is to stimulate the nervous system by means of the skin, and to assist the sluggish circulation through the different organs and cell spaces of the body by flushing the skin with blood. This action may be enhanced by massage, which aids the excretion of toxic products through the skin in much the same way that the internal treatment effects this through the kidneys. There is a particular class of neurasthenics who benefit very greatly by the regular flushing of the colon as produced by the Plombières system of treatment; in these cases mental depression is a prominent symptom.

The choice of climate in cases of neurasthenia depends to a great extent upon the stage of the disease. The majority of neurasthenics require some degree of rest cure as a preliminary to other forms of treatment, and this is usually carried out at home; afterwards a stay at a quiet bracing station should be advised. Mountain or sea air are, as a rule, to be preferred, almost the only exception being cases in which patients do not sleep well at a high altitude or in a bracing climate. Sleep is of such paramount importance to neurasthenics that anything which interferes with it is absolutely contra-indicated.

The cause of the neurasthenia should always be borne in mind. In this consideration the business man, in whom the disease is brought on by overwork or worry, should be removed completely from the sphere of business, and therefore often does best on a sea voyage; on the other hand, the lady whose neurasthenia appears at the end of a busy season

in London does best when she is sent to some quiet, bracing watering-place, where she has some little distraction, but not sufficient to interfere with the regularity of her daily life. The patient who has progressed beyond the early stages, and can walk for two hours without fatigue, may with advantage stay at a place where he can play golf; if young and still further advanced towards cure, he will do well at an Alpine resort.

The British Isles have so many places suitable for treatment that it would take too long to enumerate them. Buxton, Harrogate, Llandrindod Wells, and Strathpeffer among the spas; the East coast, the Yorkshire moors, and the districts around Grantown and Aviemore in Scotland among the more important climatic stations.

The high Alps are very suitable for young or middle-aged patients whose circulatory systems are in perfect working order, either in winter or summer.

In the summer there is little difficulty in finding a suitable climate at one of the many resorts in the British Islands, but in the winter difficulty arises, inasmuch as neurasthenic patients require an open-air life, and it is difficult to arrange for this at home. As I have already said, the younger patients, especially those who have progressed towards recovery, do well at an Alpine resort so long as they are content to keep to the milder forms of exercise. For the more elderly a sea voyage to the West Indies provides an open-air life under agreeable conditions of temperature; the patient, however, should be the sole occupant of a cabin, and should take a trip in which there are frequent stops, so as to break the monotony of a long sea voyage.

For neurasthenics the Italian Riviera is, on the whole, preferable to the French. Pau and St. Jean de Luz are two alternative stations on the Biscayan side. Biarritz is usually too windy, but is very bracing. Two of the best European resorts are Algeciras and Ronda. Algeciras is on the sea, and has an equable temperature, while Ronda is a short distance inland, and is situated at an elevation of 3,000 ft.; the latter makes an excellent bracing alternative to the former, and both have very good hotel accommodation. Algiers is also a good winter resort. In Egypt the stations round Cairo are to be preferred to those of Upper Egypt as being more bracing. Of these two, Heliopolis, the new desert resort, is the best, inasmuch as it is the driest and the most bracing. Helouan and Mena House are the other stations in this district, and all have excellent hotels.

In conclusion, I would like to point out once more, especially to those who send us patients for treatment, the importance of the time factor in the cure of neurasthenia.

## DISCUSSION.

Dr. BUCKLEY (Buxton) agreed generally with the views so ably expressed by Dr. Ringrose Gore, but wished to point out that one of the most valuable balneological measures for neurasthenia, especially if restlessness and insomnia were prominent features, had not been mentioned. He referred to the wet pack applied at about 90° F., with strict attention to technique as described in text-books on hydrotherapy. Its effect was often most remarkable, and of the utmost value in dealing with this difficult type of case. He considered that sea voyages were rarely desirable in neurasthenia, except of the mildest type; the narrow quarters, want of occupation, and general monotony, not to mention the possibilities of *mal de mer*, were unfavourable, and tended rather to produce a marked introspective state of mind, and to make the patient worse. For the depressed, tonic climates, and for the irritable, sedative climates, were required, and were not difficult to find either in this country or on the Continent.

Dr. PRESTON KING (Bath) considered that in the treatment of neurasthenia change was all-important, with rest, and, as far as possible, absence of worry. Physical disease, such as colitis, arthritis, or affection of the heart, must be treated. In colitis the Plombière douche was useful, but it was after all only to be recognized as a glorified enema. Too much had been claimed for the latest "cure." The same might be said of the Nauheim baths; these did good in some quick pulse cases, not by virtue of some occult action of gas bubbles upon the skin, but rather by the tepid bathing aided by suggestion. Properly used, suggestion was a distinct help to cure not only in neurasthenia but in all illness.

Dr. EDGECOMBE (Harrogate) said that the subject of neurasthenia in relation to spa treatment covered such a wide field that little of a practical nature could emerge from discussion unless the exact connotation of the term "neurasthenia" were clearly defined. The more severe cases, characterized by profound fatigue, bodily or mental, or both, stood in a category by themselves; and demanded for their treatment rest before all things. For them balneology, *per se*, had no place, except in the later stages as a means of accelerating recovery. Many health resorts, however, afforded unusual facilities for carrying out a rest cure, which should always be undertaken, if possible, away from home. The vast majority of cases of so-called neurasthenia in health resorts were of the milder type, and to many of them the term was very loosely applied. The border-lines between neurasthenia, psychasthenia, hysteria, hypochondriasis, incipient melancholia, and the merely "neurotic" individual, were so ill-defined that the same case would not infrequently be placed by different physicians in different categories. Though any suggestion should be welcomed which might add to our resources in the treatment of this protean disorder, it would appear unprofitable to lay down any special form of treatment as

widely serviceable without defining clearly to which category it was to be applied. Each case must be treated on its merits, and not the least important factor was the tact and personality of the physician in charge.

Mr. WM. ARMSTRONG (Buxton) considered that neurasthenia depended upon disturbance of the sympathetic nervous system, in some cases preceded by, in nearly all followed by, auto-intoxication. He strongly advocated direct treatment of the cervical ganglia of the sympathetic, in minor cases by means of ionization of the neck, in more severe ones by anæsthetic ionization, followed by light applications of the electric cautery. For the auto-intoxication nothing was so helpful as the drinking and inhalation of strong radium emanations in water (8,000 Machi units per litre), which greatly increased nervous force, and also strongly stimulated the excretion of waste products, especially increasing the output of carbonic acid.

Dr. REES (Llanwrtyd Wells) alluded to the fact that preceding speakers had not mentioned influenza as a possible cause of neurasthenia, but, in his opinion, cases of neurasthenia had been much more numerous since the advent of influenza in this country. He concurred with the previous speakers that it was desirable to have a definite conception as to what conditions should be included under the term "neurasthenia." In the absence of any authoritative pronouncement on the matter, he had, for himself, adopted the meaning of the word from its Greek derivatives, which signified lack of nerve force. The term "neurotic," on the other hand, he had always considered as applicable to a highly excitable and unstable state of the nervous system, associated with exaggerated reflexes.

Dr. F. G. THOMSON (Bath) was of opinion that the first essential in the treatment of neurasthenia was to get a clear mental conception of the nature of the disease. Dr. Gore's statement that it was due to gastro-intestinal toxæmia was not borne out by facts. It was not the "bon-vivant" who became neurasthenic, but the patient who, after years of anxiety and worry, eventually broke down under the strain. Neurasthenia was a psychosis of exhaustion, and the primary factor in treatment must be complete mental and physical rest. The great majority of severe cases were bad sleepers, and such patients were likely to derive far more benefit from a sedative than from a bracing climate.

The PRESIDENT (Dr. T. Fred Gardner) said he had been asked to say something respecting Bournemouth and its climatic suitability for neurasthenics. He mentioned the varying degrees of sedative influence exercised by Central Bournemouth, the East and West Cliffs, and their applicability for securing sleep. He also mentioned Bournemouth's quiet Sunday as a unique feature of this town, whereby much of the noise and unrest of other places was avoided. He agreed with Dr. Preston King that much in the treatment of neurasthenia depended on the personality of the physician and the wise use he made of suggestion suited to each particular case.

# Balneological and Climatological Section.

April 5, 1911.

Dr. T. Fred Gardner, President of the Section, in the Chair.

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## Some Pharmacological Effects of the Strong Sulphur Water (Harrogate).[1]

By David Brown, M.D.

At the outset I wish to thank the Council of the Section for the opportunity afforded me of bringing before you the results of a somewhat novel inquiry which unfortunately bristles with technical details. These last shall be kept as much as possible in the background, but I think you will all agree that work which breaks comparatively new ground generally requires a more detailed and technical description than is necessary in the case of more nearly clinical subjects of research. It is needless to extol the virtues of so well known a source as that of the strong sulphur well of Harrogate, but some data obtained by the best and most exact methods known to biochemical research may be useful in defining the points most likely to be of therapeutic value.

Last year I submitted certain conclusions drawn from the examination by exact quantitative procedures of the urine of persons fed on a non-purin diet who were treated with fixed doses of sulphur water, and who, at intervals, took measured doses of pure purin (hypoxanthin), so that the effects of sulphur water might be gauged both as to its influence on the excretion of uric acid arising from tissue change (endogenous), and also on that part of the uric acid excretion depending on diet (exogenous). These data appeared (in extract) in the *British*

[1] Paper II.

*Medical Journal* of August 20, 1910,[1] and may very shortly be epitomized as follows :—

(1) Diuresis in physiological cases amounted to 40 per cent.; in gout cases as much as up to 110 per cent. Specific gravity of the urine was relatively higher during the taking of sulphur water, showing increased excretion of total solids.

(3) Excretion of total nitrogen increased up to 10 per cent.

(4) Endogenous (or body uric) acid increased 8 per cent. during taking of sulphur water; increased a further 11 per cent. after the cessation of treatment by sulphur water.

(5) Percentage of ½ grm. of hypoxanthin taken by mouth, obtainable as uric acid, when on non-purin diet, only varied from 36 to 50 per cent. (This agrees with results given by most observers.)

(6) That there was increased percentage of hypoxanthin excreted as uric acid during the taking of sulphur water, viz., up to 80 per cent. of dose given.

(7) Decrease in excretion of endogenous xanthin bases during treatment of sulphur water equalled 33 per cent.

(8) Further decrease after cessation of treatment by sulphur water, 22 per cent. Total fall, 45 per cent.

(9) Endogenous kreatinin during taking of sulphur water increased by 5 to 10 per cent., with a fall of 15 per cent. after cessation of treatment.

*It was especially noteworthy that no increase in the excretion of xanthin or purin basis, as such, resulted from the taking of sulphur water in conjunction with doses of exogenous purin (hypoxanthin).*

These results, so important for all interested in spa treatment generally, and in Harrogate in particular, needed further tests for their complete establishment; first, in the way of direct verification by repetition, and secondly in eventually obtaining more complete data, from observations on all the excreted substances so far as at present they are known.

The points taken for confirmation were :—

(1) The reality of the diuresis and its amount.

(2) The rise in the excretion of total nitrogen of the urine.

(3) The rise in excretion of body tissue (endogenous) uric acid during treatment by sulphur water.

[1] *Brit. Med. Journ.*, 1910, ii, p. 421.

(4) The rise in excretion of uric acid arising from the food (exogenous), as shown by the ingestion of measured amounts of pure hypoxanthin in regularly repeated doses.

(5) The rise in excretion of body tissue (or endogenous) kreatinin as an index to the degree of stimulation of the enzymes of the liver and possibly also of an increase in muscle metabolism.

The new points observed were the following :—

(6) The fate of the sulphur water as regards the urinary and bowel excretions, and the ascertainment of any relationship, direct or inverse, between the amounts of the two excretions.

(7) To ascertain whether any change occurred in the excretion of the phosphates as an index of tissue change.

(8) To ascertain whether any change in the amount of indican (indoxyl sulphuric acid) took place as a result of the course of sulphur water.

(9) To examine the blood-pressure at frequent intervals, and to register any variations in the same.

(10) To ascertain whether the amount of potassium sulphocyanate in the saliva was altered during the course of sulphur water.

A word as to the methods adopted. The *urine* was massed in large sterilized bottles, the urine being passed directly into these last. Pledgets of wool (sterilized by flame) were used as stoppers to the bottles. *Fæces* were weighed as soon as voided. *The total nitrogen* of the urine was estimated in duplicate by Kjeldahl's process. *Uric acid* was estimated by the Hopkins and Ludwig-Salkowski processes; *kreatinin* by Folin's colorimetric process. *Phosphates* were estimated by the acetate and uranium method. *Indican* (indoxyl sulphuric acid) was estimated by a process hitherto used but little, I believe, in this country. It is a colorimetric adaptation by Dr. Oerum (Copenhagen) of Bouma's indigo red method, and not only seems to be much more exact than any mass analysis, but has the added advantage that, unlike the indigo blue process, the colour is completely permanent. Meisling's polarizing spectroscopic colorimeter is used for the estimations. A full account of the process is to be found in Hoppe Seyler's *Zeitschrift für physiologie Chemie*.[1] I here acknowledge my indebtedness to Dr. Oerum for many special details with regard to the process which he was kind enough to give me.

[1] *Zeitschr. f. physiol. Chemie*, Strassb., 1905, xlv, p. 459.

The blood-pressure was taken by the atmospheric pressure instrument under as nearly identical conditions as regards time, place, and surroundings as possible. The sulphocyanate of the saliva was measured by a colorimetric method with ferric chloride (liq. ferri perchlor.) in Meisling's colorimeter. It is almost needless to say that the following precautions were observed: Saliva was collected for five minutes on experimentee rising in the morning, and while still fasting.

All examinations of urine were made from fresh specimens, and the day's observations were commenced within from one to two hours after each twenty-four hours' collection was completed. Only two exceptions to this rule occurred, and these are duly noted.

It now merely remains for me to say that without exception I observed my rules (1) of awaiting the termination of each series of experiments before calculating, even in the roughest way, any of the data obtained in the laboratory; and (2) of rigorously rejecting any results which might be defective from a technical point of view.

The subject, the same as that of Case I (of the previous paper of the series), took the following diet on each of twenty-one successive days:—

| | |
|---|---|
| 14½ oz. bread (white) | 8 oz. rice pudding |
| 25 oz. milk | 8 oz. macaroni cheese |
| 5 eggs | 2½ oz. butter |

20 oz. aerated distilled water

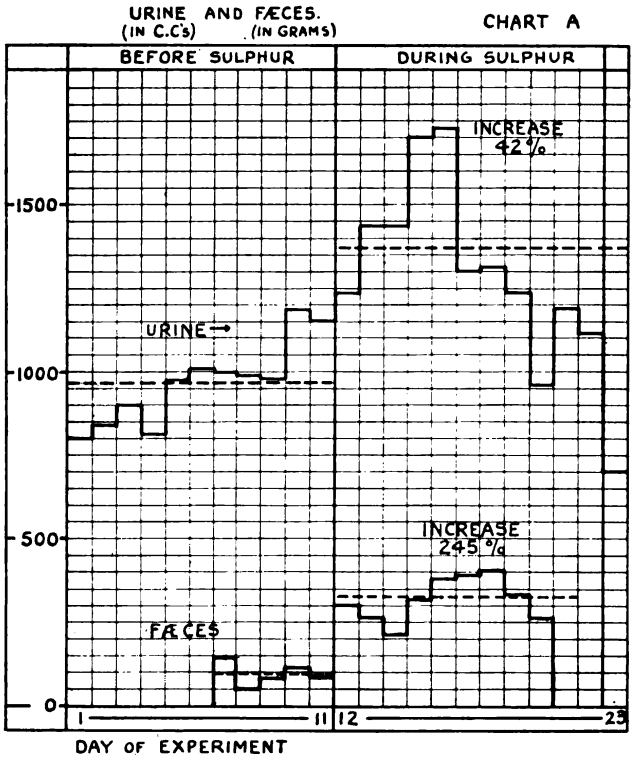
On the morning of the twelfth day of the experiment (between 8 and 9 a.m.) 580 grm. (20 oz.) of the strong sulphur water were taken, and this dose was repeated on each day up to and inclusive of the nineteenth day. On the twentieth and twenty-first days 18 oz. were taken, and on the twenty-second 16 oz. (All the doses of sulphur water were taken fasting.) On the eighteenth, nineteenth, twentieth and twenty-first days a dose of 0·3 grm. of pure hypoxanthin was taken after 5 p.m. in the afternoon. (My best thanks are due to Herr E. Merck, of Darmstadt, who kindly supplied me with accurately measured and bottled weights of hypoxanthin at a cost considerably below that of production.) On the twenty-first day 10 oz. extra of distilled water were taken to relieve thirst. On the twenty-second and twenty-third days the diet consisted of:—

40 oz. milk; 14 oz. bread; aerated distilled water (*ad lib.*)

The points observed and shown on the accompanying diagrams may now be taken. Chart A refers to the points (1) and (6) of the scheme of observations.

CHART A.

(1) The average amount of water passed in the eleven days of the pre-sulphur stage was 970 c.c. (May I remind those more used to thinking in ounces that 100 c.c. roughly correspond to 3½ fluid ounces.) During the first nine days of the sulphur water period the average amount of urine rose to 1,374 c.c., a daily excess of 404 c.c., or nearly 42 per cent. (Previous cases showed a diuresis varying from 25 to 110




per cent. The highest percentage refers to a case of recurrent gout.) On observing solely the amount of urine passed on the various days, this large average amount of urine could only be held to denote a positive diuresis on two days, the fourth and fifth of the sulphur water period, as only on these two days was the difference between the amount passed and that of the average of the first eleven days greater than the amount of sulphur water taken per diem (580 grm.) Look for a minute at the lower line of the chart; it shows that the average weight of fæces for days 7 to 11 inclusive was 94 grm. During the days 12 to 20

inclusive the average weight of fæces rose to 324 grm. per diem, an average excess per diem of 230 grm., or 245 per cent. Now if the 404 grm. or cubic centimetres (specific gravity being neglected) of urine be added to the 230 excess grammes of fæces, we find that the result of taking 580 grm. of sulphur water is to cause the excretion of 634 grm. of urine and fæces, an excess of 56 grm. per diem over the amount ingested. A glance, however, at the chart will show that the maximum output of fæces was reached on days 5 to 7, and that, generally speaking, the days of highest bowel activity were those of the highest degree of diuresis. *Thus we are justified in speaking of the positive diuretic action of sulphur water.* This excess of renal and bowel excretion amounts, then, to about 500 grm. in nine days, or roughly about 1 lb. Further, the diuresis shows a distinct rise and subsequent fall, with a maximum on the fifth day. (In previous cases the maximum diuresis has been as late as the seventh day.) During the first eleven days the body weight of the subject, taken at frequent intervals, was reduced from 10 st. $8\frac{3}{4}$ lb. to 10 st. $8\frac{1}{4}$ lb. During the remaining twelve days the weight was reduced to 10 st. 5 lb. Of this amount, equivalent to 1,500 grm., about 500 grm. are accounted for above, as excess of urine and fæces excreted during the first nine days of the sulphur water period, and probably the profuse sweating (to be described) of the twenty-first and twenty-second twenty-four-hour periods accounts for at least an equal amount. This leaves something like 500 grm. unaccounted for, a loss covered by the normal day to day variations in body weight.

### Chart B.—Total Nitrogen.

(2) This chart shows an average rise of 8 per cent. during the sulphur water period—that is, from 14·8 grm. per diem to 16 grm. per diem. (The highest rise recorded in previous experiments was 10 per cent.)

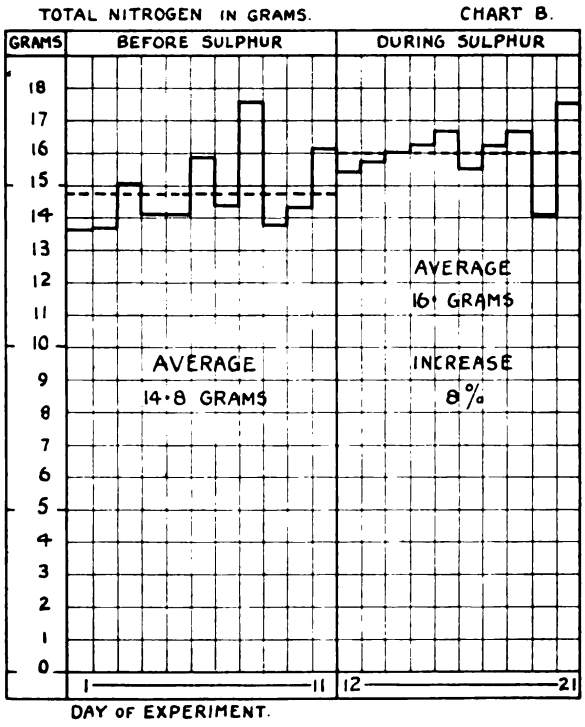
### Chart C.

(3) Body tissue (endogenous) uric acid is here measured by its contained nitrogen (in milligrammes). The average excretion of

| | | | |
|---|---|---|---|
| Days 1 to 11 was | 0·110 grm. | = | 0·330 of uric acid |
| ,, 12 ,, 17 ,, | 0·130 ,, | = | 0·390 ,, ,, |

The increase is, then, 18 per cent. (N.B.—This is the highest increase yet noted.)

(4) Uric acid derived from food (exogenous). The shaded part of the chart shows the excess excretion of uric acid following the ingestion of the four doses of 0·3 grm. of hypoxanthin as detailed above. It had occurred to me that the exhibition of single doses of pure hypoxanthin during the course of sulphur water (as in earlier experiments) might have given an exaggerated result as regards the increased excretion of hypoxanthin as uric acid (80 per cent.)—that is, of uric acid of food origin—seeing that the experimentees




had previously been for a considerable period on a non-purin-containing diet. It was hoped to check these results by the method of *repeated* administration of moderate doses of pure purin (hypoxanthin). The chart shows an average excess excretion of uric acid due to hypoxanthin during the six following days of—

0·058 grm. of nitrogen = 0·175 grm. of uric acid.

This corresponds to just about 80 per cent. of the ingested hypoxanthin (1·2 grm.) oxidized to uric acid, a result almost identical with that

obtained in earlier experiments where only single doses of hypoxanthin were used during the administration of sulphur water. Thus the ordinary oxidation of purin bodies to uric acid (40 per cent.) is practically doubled (nearly 80 per cent.) during the taking of sulphur water.

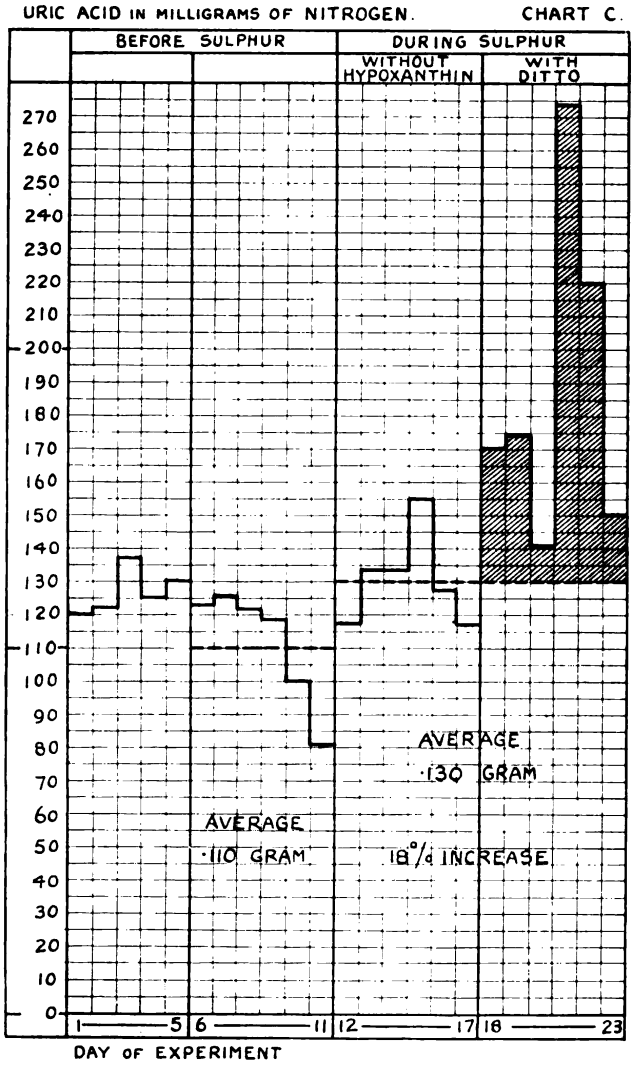
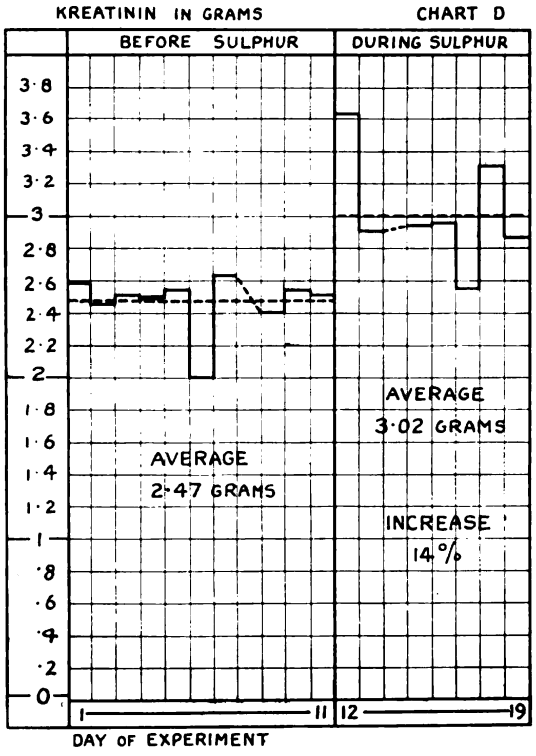



CHART D.

This refers to point (5). The endogenous kreatinin average (days 1 to 11) was 2·47 grm. per diem. There was no noticeable fall as a result of restriction to a non-purin-containing diet. During the first

nine days of administration of sulphur water the average excretion rose to a point above 3 grm. per diem, a total increase of 13 per cent. The percentage of kreatinin excretion as part of the total nitrogen excretion rose from 18 to 19 per cent. in the sulphur water period. It may be remarked that a measured amount of walking exercise (3 miles) was taken per diem, and that the experimentee did from twelve to thirteen hours' laboratory work per diem. If, as is generally held, the kreatinin (endogenous) excretion is an index of metabolic change in the

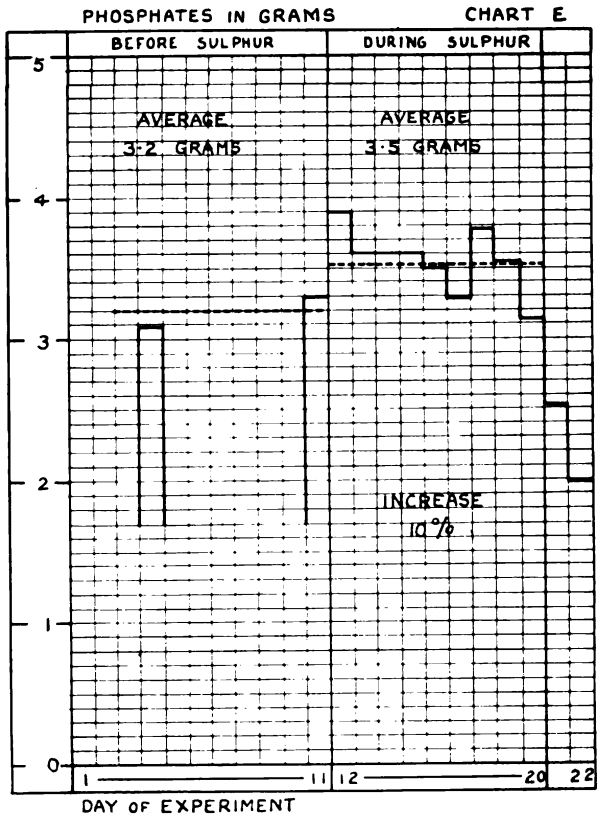



liver and possibly also in muscular tissue then these observations must point to increased tissue change in these structures as a result of the imbibition of sulphur water.

CHART E.

(7) The excretion of phosphates was taken on the fourth and eleventh days of the experiment, and shows an average of 3·2 grm. During the first nine days of ingestion of sulphur water the average

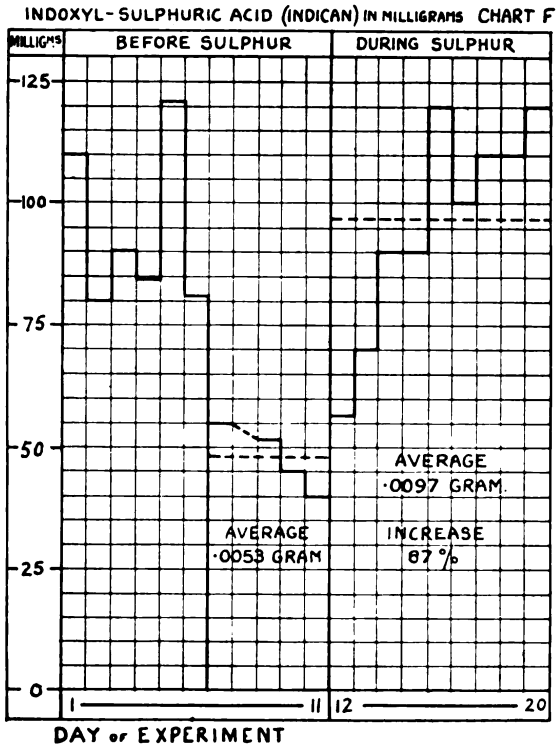
excretion of phosphates rose to 3·5 grm., an increase of 10 per cent. The sudden fall in the amount of phosphates after the alteration of the diet is somewhat noteworthy. It partly coincides with the rise of temperature detailed later on. By most physiologists the excretion of phosphates on a rigid and invariable diet, associated with regular exercise, has been held to be an index of tissue change, and in this case




appears to point again to increased general metabolic activity. This increase in the phosphate excretion is also interesting from another point of view. In elderly subjects the administration of the strong sulphur water sometimes leads to a certain amount of prostatic irritation. It seems quite possible that this may be due to the increase of phosphates, the acidity of the urine being generally regarded as dependent on the amount of acid sodium phosphate in the urine. The diuresis may, in certain other cases, be a contributing cause.

CHART F.

(8) Indican (indoxyl sulphuric acid). The chart shows a surprising result. The total amount of indoxyl sulphuric acid on four of the last five days of the pre-sulphur water period amounted to 5 mg. per diem. During the first nine days of treatment by sulphur water the average was nearly 10 mg. per diem, an increase of 87 per cent. I may say that this result was totally unexpected. One believed, by a priori reasoning,




that the action of sulphur water would lessen the bacterial activity in the intestine, that it would exercise possibly a mild antiseptic action, as suggested by Professor Wild in a paper read before the Society[1] in 1910; and that as a consequence there would be a decreased production and absorption of the derivatives of the aromatic nucleus of protein, that is, tryptophane. Now experiments in which tryptophane is given by the mouth to normal subjects do not show any increased excretion of the aromatic bodies in the urine. On the other hand,

[1] *Proceedings*, 1911, iv (Therap. Sect.), p. 13.

direct injection of tryptophane into the lower portion of the small intestine leads to an immediate increase of the aromatic sulphates of the urine. Now sulphur water hurries on the contents of the stomach and upper small intestine, and probably brings to the bacteria of the lower intestine a larger proportion of tryptophane-containing proteid than would reach this part of the intestine under more normal conditions. The action of calomel in increasing the excretion of bodies of the indoxyl group is well known, and probably has a similar explanation. The initial fall of the first six days of the chart is also in accord with the observations of Combe (Lausanne) and others, on restriction of the subject to a lacto-farinaceous diet. The five eggs daily ingested did not here seem to have much effect in keeping up the excretion of indoxyl sulphuric acid during the pre-sulphur period.

(9) The blood-pressure was very kindly taken for me by Dr. Edgecombe (Harrogate). The lower part of the fractions refers to the systolic pressure, the numerators to the diastolic pressure.

| | Blood-pressure | Pulse |
|---|---|---|
| Fifth day ... ... ... | $\frac{100}{132}$ ... ... | 58 |
| Sixth day ... ... ... | $\frac{100}{130}$ ... ... | 60 |
| Eighth day ... ... ... | $\frac{100}{130}$ ... ... | 64 |
| Eleventh day ... ... | $\frac{95}{127}$ ... ... | 60 |
| Average | $\frac{99}{130}$ | |
| Twelfth day ... ... | $\frac{95}{130}$ ... ... | 66 |
| Thirteenth day .. ... | $\frac{90}{126}$ ... ... | 66 |
| Fifteenth day ... ... | $\frac{90}{130}$ ... ... | 57 |
| Eighteenth day ... ... | $\frac{95}{128}$ ... ... | 64 |
| Twentieth day .. ... | $\frac{100}{135}$ ... ... | 72 |
| Average | $\frac{92}{128}$ | |

Thus whatever may be the exact significance of "diastolic pressure" and the meaning of its slight lowering in relation to the case under observation, the alteration of the systolic blood-pressure due to the ingestion of sulphur water seems virtually negligible in the healthy subject fed on a sufficient but strictly measured non-purin diet. The solitary exception is the observation of the twentieth day. This can, I think, be satisfactorily explained as the result of the ingestion of repeated doses of hypoxanthin. On the nineteenth day of the experiment the subject suffered from depression and considerable headache, and on the twentieth day of the experiment his temperature was 100·2° F. at 2 p.m. He sweated profusely during the following night. On the following day at 2 p.m. his temperature was 102·6° F., rising the same evening to 103° F. On

the morning of the twenty-second day of the experiment the temperature at 8 a.m. was 99·6° F., and at 11 a.m. was subnormal. His skin had an icteric tinge, and he complained of considerable lumbar pain. There was no albumin in the urine, and on the twenty-fifth day the lumbar pain had quite disappeared, to be replaced by a feeling of considerable stiffness in the flexor muscles of the lower parts of the thighs. The urine, meanwhile, on the twentieth and twenty-first days of the experiment showed enormous deposits of uric acid crystals. On the latter of these two days the amount of these crystals was 0·3 grm. The feverish attack was not followed by any marked debility. This, I take it, is the clinical picture of a true uric acid storm, and was the cause of the increased blood-pressure of the twentieth day. It would also, perhaps, hold the elements of a suggestion for the treatment of cases of high blood-pressure by sulphur water if such cases are, as a rule, kept on an ordinary purin-containing diet, and also furnish an explanation of the rises of blood-pressure which are asserted to take place in cases of this kind during their treatment at Harrogate.

(10) Sulphocyanate in the saliva. One of the teachers to whom I owe a great deal, the late Dr. Samuel Fenwick, was accustomed to point out the variability of excretion of this body in the saliva. He showed that in certain conditions in which the function of the liver was abnormally performed, there was a lessening, amounting in some cases to almost entire absence, of sulphocyanate in the saliva. These observations were reported in the *Medico-Chirurgical Transactions*.[1] As gout was one of the conditions mentioned I carried out observations to show the influence of sulphur water on the excretion of this body. The results are only definite in two points—namely, that there was a definite rise in excretion of sulphocyanate on the fixed non-purin diet, and that the amount of saliva excreted in a given time was lessened during the sulphur water period, and that there was some fall in the actual amount of sulphocyanate secreted in a given time, even if there was no percentage fall in a given bulk of saliva. The list of observations are appended. The numbers have only a relative value and refer to equivalent thicknesses of layer to give the standard colour in Meisling's colorimeter. Hence the number 1 would show the greatest percentage and the number 25 the smallest percentage of sulphocyanate in the saliva collected during five minutes. In other words, the numbers are inversely as the proportions of sulphocyanate.

[1] *Med. Chir. Trans.*, Lond., 1884, lxv, p. 117.

| | | | |
|---|---|---|---|
| Second day ... ... | 18 | Average 21 | Before sulphur water. |
| Third day ... ... | 25 | | |
| Fourth day ... ... | 19 | | |
| Fifth day ... ... | 6 | Average 9 | |
| Seventh day ... ... | 12 | | |
| Ninth day ... ... | 6 | | |
| Eleventh day ... ... | 12 | | |
| Twelfth day ... ... | 16 | Average 16 | During sulphur water. |
| Fourteenth day ... | 14 | | |
| Fifteenth day ... ... | 15 | | |
| Sixteenth day ... ... | 16 | | |
| Eighteenth day... ... | 21 | | |

A rise in the excretion of sulphocyanate as a result of taking sulphur water was hardly expected, as in all probability the sulphur constituent of the body is fully able to supply a far greater percentage of sulphocyanate than is ever met with in the healthy subject. The abstraction of extra fluid by kidney and bowel probably explains the lessened amount of saliva secreted in a given time.

The action, then, of sulphur water may at present be best summarized as one of increased oxidation and tissue change. That it profoundly influences the general metabolism is obvious from :—

(1) The increased total nitrogenous output of the urine: up to 10 per cent. increase.

(2) The increase in the excretion of the total phosphates: 10 per cent. when the normal subject is fed on a strictly regulated diet, identical from day to day in every particular, and where the amount of exercise is the same for each day of the experiment.

(3) The increase in the total solids of the urine as shown by a comparison of amounts of urine and the specific gravities also definitely points in the same direction.[1]

(4) The increase in excretion of endogenous kreatinin, 13 per cent., proves that the main sources of body tissue kreatinin are very greatly affected and metabolism largely increased.

Further, as regards given classes of tissue and special organs :—

(5) The large increase in excretion of body tissue uric acid (endogenous), up to 18 per cent., proves the powerful influence of sulphur water in increasing the rate of metabolism of the nuclear portions of tissue cells.

[1] *Vide* Paper I, *Brit. Med. Journ.*, 1910, ii, p. 421.

(6) Finally, the fact that hypoxanthin is recoverable from the urine as uric acid to a percentage almost double that of the normal, and that in two-thirds of the normal time,[1] is very plain evidence of the greater extent and increased oxidation going on in the body generally, and in the liver in particular. In the present state of our knowledge this action can only be explained as due to the considerable stimulation of the xanthin oxidase of the liver.

Incidentally one may remark that during a course of sulphur water the body becomes capable of dealing with increased quantities of these precursors of uric acid, a point of some interest with regard to the diet in gout.

As to whether these points have any direct bearing on the classes of cases most likely to receive benefit at Harrogate I must leave to your criticism and judgment. Allow me to point out and bring to your recollection some of the main points of recent research with regard to gout and arthritic troubles. Professors Brugsch and Schittenhelm[2] have shown (1) that gouty patients kept on a non-purin-containing diet and dosed with measured amounts of hypoxanthin excrete the hypoxanthin, as uric acid, both more slowly and in smaller percentages than is normal; (2) they assert that the administration of hypoxanthin in gouty patients may provoke an acute attack of gout. Dr. Gowland Hopkins, F.R.S., some years ago showed that the total uric acid output is lower in gout than is normal, and later, Dr. Mallory[3] has shown in a small series of cases that this is true whether the uric acid is of endogenous or exogenous origin. Mallory's three cases show only 8 per cent. of hypoxanthin recoverable as uric acid. In cases of rheumatoid arthritis there appears to be no noteworthy alteration in the excretion either of endogenous or exogenous uric acid. Dr. Ackroyd's article in the *Bulletin*[4] (published by the Committee for the Study of Special Diseases, Cambridge) gives very full details, and later, some of Dr. Mallory's cases suggest delay in excretion of exogenous uric acid, although the percentage return of hypoxanthin (as uric acid) remains normal.

As to the active agent or agents in sulphur water little or nothing is known. The evidence brought forward as to the stimulation of a ferment

[1] *Vide* Paper I, *Brit. Med. Journ.*, 1910, ii, p. 421.

[2] "Die Nukleinstoffwechsel und seine Störungen (Gicht. Uratsteindiathese u. a.), Jena, 1910.

[3] *Journ. of Path. and Bact.*, Camb., 1910, xv, p. 207.

[4] "Bulletin of Committee for Study of Special Diseases," Camb., 1908, ii, p. 145.

like the xanthin oxidase of the liver suggests that its principal effect may be brought about by a peroxidase. A ferment is to-day regarded as consisting of two parts: (1) An organic radicle, and (2) a substance necessary to its action under normal conditions, but able to be replaced *in vitro* by substances of the type of peroxide of hydrogen. In other words, a peroxidase. Such bodies may exist in the strong sulphur water in contradistinction to almost all other waters of this class. One has only to mention the presence of barium, which forms a well-known peroxide, to show how easily this may be the case. The whole matter requires considerable further investigation. Other possible factors are the degree of ionization of the constituents of the water, and the radio-active condition. The hyper-iso or hypo-tonicity of the water as compared with blood plasma, does not seem to be a hopeful line of research, it being noted that the imbibition of salt solution isotonic with the sulphur water had no effect on purin transformation, nor was the cause of any marked diuresis.

The results of my inquiries into the action of sulphur water in approximately normal subjects tend to show that in all these points sulphur water in therapeutically useful doses exerts a large and profound influence. To touch again on a very prominent characteristic in some cases of gout, I refer to the lessened amount of urine passed per diem—an amount often well under 20 oz. in the twenty-four hours. This contraction, I may note, is very rapidly relieved by treatment with this water, the diuresis amounting to well over 100 per cent. In such cases also the specific gravity of the urine does not vary inversely as the amount of urine passed; on the contrary the specific gravity is often highest at the height of the diuresis, the increase of the total solids of the urine being relatively enormous in these patients.

A protocol is appended for those who wish to have the actual figures.

I have to acknowledge various acts of helpful kindness and encouragement from Dr. Gowland Hopkins and Dr. Ackroyd, of Cambridge, during the prosecution of this inquiry. I have already mentioned the kindness of Dr. Edgecombe in connection with the observations on the blood-pressure. I am greatly indebted to Dr. A. F. Perkin, of Leeds University, for putting at my disposal a very pure specimen of indigo red, and also to the Badische Anilin and Soda Fabrik for several grammes of the same substance which they very kindly sent me from Germany. To Herr Merck, of Darmstadt, I have already expressed my obligations; and Herr Leitz, of Wetzlar, was also very kind in

## Protocol of Experiment.

| Day | Urine | Fæces | Total nitrogen | Endogenous (body tissue) uric acid | | Doses of hypoxanthin | Exogenous (food) uric acid | Endogenous (body tissue) kreatinin | Total phosphates | Indoxyl sulphuric acid (indican) | Blood-pressure | Pulse | Comparative amounts of sulphocyanate in the saliva | | Dose of sulphur water | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | c.c. | grm. | grm. | grm. | | grm. | grm. | grm. | grm. | grm. | mm. of mercury | | | | oz. | |
| 1 | 800 | — | 13·6 | 0·359 | | — | — | 2·59 | — | 0·011 | — | — | — | | — | Pre-sulphur water stage. |
| 2 | 840 | — | 13·7 | 0·367 | | — | — | 2·44 | — | 0·008 | — | — | 18 | | — | |
| 3 | 900 | — | 15·12 | 0·411 | | — | — | 2·51 | — | 0·009 | — | — | 25 | α | — | |
| 4 | 815 | — | 14·15 | 0·374 | | — | — | 2·49 | 3·09 | 0·008 | — | — | 19 | | — | |
| 5 | 975 | — | 14·15 | 0·392 | | — | — | 2·55 | — | 0·012 | 100/132 | 58 | 6 | | — | |
| 6 | 1,020 | — | 15·9 | 0·368 | | — | — | 2·01 | — | 0 008 | 100/130 | 60 | — | | — | |
| 7 | 1,010 | 145 | 14·4 | 0·378 | | — | — | 2·63 | — | 0·006 | — | — | 12 | | — | |
| 8 | 990 | 51 | 17·6 | 0·362 | | — | — | — | — | — | 100/130 | 64 | — | β | — | |
| 9 | 980 | 80 | 13·9 | 0·353 | | — | — | 2·40 | — | 0·006 | — | — | 6 | | — | |
| 10 | 1,185 | 109 | 14·33 | 0·301 | 0·330 average | — | — | 2·56 | — | 0·005 | — | — | — | | — | |
| 11 | 1,150 | 87 | 16·1 | 0·242 | | — | — | 2·52 | 3·31 | 0·004 | 95/127 | 60 | 12 | | — | |
| 12 | 1,240 | 355 | 15·5 | 0·350 | | — | — | 3·64 | 3·9 | 0 005 | 95/130 | 66 | 16 | | 20 | Sulphur water stage. |
| 13 | 1,435 | 268 | 15·8 | 0·399 | | — | — | 2·91 | 3·58 | 0·007 | 90/126 | 66 | — | | 20 | |
| 14 | 1,435 | 217 | 16·00 | 0·398 | | — | — | — | 3·58 | 0·009 | — | — | 14 | | 20 | |
| 15 | 1,705 | 319 | 16·2 | 0·465 | | — | — | 2·94 | 3·58 | 0·009 | 90/130 | 57 | 15 | γ | 20 | |
| 16 | 1,725 | 319 | 16·7 | 0·385 | 0·390 average | — | — | 2·95 | 3·48 | 0·012 | — | — | 16 | | 20 | |
| 17 | 1,300 | 377 | 15·6 | 0·352 | | — | — | 2·57 | 3·27 | 0·01 | — | — | — | | 20 | |
| 18 | 1,315 | 391 | 16·2 | | | 0·3 | 0·124 | 3·32 | 3·77 | 0·011 | 93/128 | 64 | 21 | | 20 | |
| 19 | 1,240 | 406 | 16·7 | | | 0·3 | 0·135 | 2·87 | 3·54 | 0·011 | — | — | — | | 20 | |
| 20 | 970 | 333 | 14·1 | | | 0·3 | 0·036 | — | 3·13 | 0·012 | 100/135 | 72 | — | | 18 | |
| 21 | 1,190 | 261 | 17·5 | 0·390 | | 0·3 | 0·432 | — | 2·55 | — | — | — | — | | 18 | |
| 22 | 1,120 | — | — | | Average | — | 0·270 | — | 1·96 | — | — | — | — | | 16 | |
| 23 | 700 | — | — | | | — | 0·061 | — | — | — | — | — | — | | — | |
| | | | | | | Total 1·200 | Total 1·053 | | | | | | | | | |
| | 42 per cent. (nearly) increase | 245 per cent. increase | 8 per cent. increase | 18 per cent. increase | | = Total 1·33 as uric acid | = 80 per cent. (nearly) of hypoxanthin oxidized to uric acid | 13 per cent. increase | 10 per cent. increase | 87 per cent. increase | Remained virtually unaltered | | The amounts are inversely as the numbers— α = 21 β = 9 γ = 16 | | | |

The date of experiment was from March 1 to March 24, 1911. Last purin containing meal on February 28, 1911 (7 p.m.). First observations taken on March 2, 1911.

Diet.—Days 1 to 21: Bread, 14½ oz.; milk, 25 oz.; eggs, 5; rice pudding, 8 oz.; macaroni cheese, 8 oz.; butter, 2½ oz.; aerated distilled water, 20 oz. On 21st day + 10 oz. aerated distilled water. Days 22 to 23: Milk, 40 oz.; bread, 14 oz.; aerated distilled water (*ad lib.*).

forwarding and carrying out my wishes with regard to the Meisling colorimeter with which he supplied me. Lastly, to Mr. Eynon, pharmacist, of Harrogate, I have to acknowledge many kind attentions and practical interest during the progress of the work.

I have now only to again thank you, Mr. President, and the members of the Section who are present for the very courteous hearing given to this paper, and to express the hope that very shortly we may have a series of similar and comparative results from others of our British spas.

## DISCUSSION.

Dr. MANTLE (Harrogate) said that the profession of Harrogate must feel indebted to Dr. Brown for the important work he had brought before the meeting. Personally, he had found in some cases an increase in the arterial pressure when the strong sulphur water was first administered, which was usually soon followed by a steady fall. Diastolic pressure he considered too indefinite to be of clinical use.

Dr. PHINEAS ABRAHAM expressed his great interest in the paper. He asked how many patients had been experimented upon, and how much sulphur water had been given per diem. He hoped that Dr. Brown would continue his observations, and that other medical men in the various watering-places would follow his example. Most of our knowledge of the therapeutical effects of the spa waters was purely empirical, and exact scientific work of this description was greatly wanted. He had learnt one thing at least that afternoon—viz., that sulphur water had an oxidizing instead of a reducing effect on the tissues, as was generally believed and thought to be the case.

Dr. DAVID BROWN pointed out, in reply, that perhaps the strict non-purin-containing diet was, in some measure, answerable for the difference between Dr. Mantle's and Dr. Edgecombe's results. He also stated that this was the fourth series of experiments initiated on the lines detailed in the paper.

# Balneological and Climatological Section.

May 15, 1911.

Sir HERMANN WEBER in the Chair.

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THE SAMUEL HYDE MEMORIAL LECTURES.

## Outlines of Medical Hydrology,

*The Science of Water and of Waters, with a Plea for its Practice and Teaching in Britain.*

By R. FORTESCUE FOX, M.D.

### LECTURE I.—ANALYSIS AND DEFINITIONS.

MR. PRESIDENT AND GENTLEMEN,

I esteem it an honour to have been invited by the Council and Members of this Section to deliver the first Hyde Memorial Lectures, and if anything were needed to add pleasure to that honour it would be the presence of yourself, Sir Hermann Weber, as Hon. President, in addition to that of the able Chairman, who usually guides our deliberations. We have always regarded you as the Apostle of Balneology in our country: *facile princeps* in age and in honour and in the services you have rendered to the cause we have at heart. And if in this Society since the date of its foundation that cause has been still further promoted and developed, we recognize that it is in no small measure under the inspiration of your work and your example.

To-day we commemorate our founder Samuel Hyde. I suppose it was desired that one of the "old Balneological Guard," like myself, should on this first occasion be charged with this duty, although it may well be that a personal touch and association will make it harder to be impartial. In truth, the work that he and others began in 1895 cannot

as yet be fully appraised. But I may claim to be in some sort its exponent, since the best part of my life has been devoted to this study and practice, and because it has always seemed to me, as it did to Hyde, that we stand at the beginning of much greater things. I believe I shall best give expression to your wishes by endeavouring to set forth in these first lectures the position which is occupied by our department of medical learning. We shall see what it is, and wherein it consists; that it is a branch of knowledge, more than most in a state of active evolution; that it is necessary to look at it as a whole, and that its elements cannot be separated; that, like most rapidly growing sciences, it suffers from a disorder of nomenclature, and that the time has come for us to choose our designations with care; that misleading words and traditions have hampered us; that we have new and true departures and proved foundations on which to build; that we are of necessity in touch with many other sciences, and in intimate relationship with all departments of medicine; lastly, that the treatment by means of water and of waters is an essential part of general therapeutics, and that it can only take its proper place in medical practice when it has been recognized and taught in the schools. In placing before our colleagues in the profession this plea for its practice and teaching in Britain, which is my chief aim in these lectures, I hope I may say that I speak as the mouthpiece of the entire Section.

Samuel Hyde was born at Stalybridge, in Cheshire, in the year 1849. It is interesting to recall the position of public affairs at the middle point of the last century. A new political age was then opening. Free Trade had been lately established in England; a wave of Liberal revolution was breaking over Europe. And we know that the wide-spread political movement which characterized that epoch heralded an equally striking revolution in thought, and the dawn of a scientific renaissance.

Hyde received his early education at the Leek Grammar School. After a period of assistantship with the late Dr. Gifford Bennett, of Buxton, his lifelong friend, he pursued his medical curriculum at King's College in London. The serious bent of his character as a student was shown by his active participation in the St. Giles's Medical Mission, and later on by his work in the Wesleyan organization. In 1877 he settled in Buxton, and for several years devoted himself to hydrotherapeutics as Medical Officer to the Peak Hydropathic and Thermal Establishment. Hyde's familiarity with the effects of baths, and his faith in their efficacy in chronic disease, date from this time. Later, moved thereto by Dr. Gifford Bennett, he relinquished this

appointment, and entered upon private practice at Buxton. The equipment of the spa physician five-and-twenty years ago was very meagre in comparison with that which his successors enjoy. The only text-book in the English language was that which you, Mr. President, had given us in your translation of Braun's "Curative Effects of Baths and Waters" in 1874. In those days Braun's admirable work, and the two little volumes on British and European medicinal waters by Macpherson, and some works on the German spas, formed my entire library in general balneology. We have now many more, and above all the monumental work by yourself and Dr. Parkes Weber. It is singular that in the Victorian Age, although there were many able practitioners at the English spas, and some authors, there were very few the scope of whose writings extended beyond their own particular health resort. It is to be feared that in spa practice the conditions are not always favourable to deliberate observation and study. The ablest men, as a rule, see so many patients that they are unable to record from year to year what they witness daily of the evolution of chronic maladies, and of the ascertained effects of baths and waters.

At Buxton, Hyde was known as a skilled and observant spa physician, deliberate, thoughtful, and thorough in all his work. Not only so: animated by a sincere belief in the action of waters and baths and climatic influences in disease, he did his best to propagate the faith. In 1889 he commenced a *Journal of British and Foreign Health Resorts*, which he continued for five years, and which brought him into touch with like-minded men. The list of his writings include several contributions on the "Waters, Baths, and Climate of Buxton," on the "Causes and Treatment of Rheumatoid Arthritis," on the "Sun Bath," on the "Pure Air Treatment of Phthisis," on the "Use of Animal Extracts in Chronic Joint Affections," on "Sciatica," a series of practical "Notes from Spa Practice," and on the "Treatment of Cardiac Affections by Baths, Climates, and Exercises." At the time of his death he was engaged in writing a comprehensive work on Balneology, of which portions were published after his death in the *Journal of Balneology and Climatology*.

In 1895 his public and propagandist work culminated in the foundation of the British Balneological and Climatological Society, with the quarterly journal of which he was the editor. This Society afforded for the first time in this country to medical practitioners at the British health resorts a common ground of fellowship and intercourse. For sixteen years it has continued its meetings for papers and discussions in these branches of medicine, and from the beginning

until the present year it has enjoyed the great advantage of the Secretaryship of our friend, Dr. Septimus Sunderland, who was Dr. Hyde's earliest coadjutor in its foundation, and without whom this work would never have been brought to fruition.

Samuel Hyde was characterized not so much by brilliant abilities as by tenacity of purpose. He was an indefatigable worker, and cared too little for recreation. His chief diversion was an evening spent, and perhaps a quiet game of billiards, with the older colleague already referred to, with whom his friendship was as that of Jonathan to David. My memory holds a vivid picture of Hyde as Chairman to Council in the early days of the Balneological Society. Many of the members, gathered from different parts of the country, were but little accustomed to medical societies. Some were young and untried men, but, like himself, enthusiastic believers in the efficacy of waters and of climates. It was the first time that these men, having many interests and problems in common, had been drawn together. The proceedings of Council were a little discursive and conversational, and I shall always remember the chairman at the head of the table at Limmer's Hotel or in Hanover Square, a short, sturdy figure, with tightly buttoned frock-coat, with ready smiles, gentle, persuasive voice and unassuming manner, full of geniality and tact, and sometimes conveniently deaf to the points of order that were raised. I followed him in the chair, and could well appraise these happy qualities. For behind the suave and courteous demeanour of Hyde there was a fixed and firm purpose, shrewd judgment and management of men, and from day to day and year to year laborious and untiring industry.

No pains were spared in the task which the young Society, under the inspiration of Hyde, set itself to accomplish, above all to elevate and confirm the status of balneological medicine in this country, to give its votaries not only a social but also a scientific centre in London, to bring them into fruitful contact one with another, and with the profession at large. In our country, as elsewhere, valuable physical methods of treatment have been apt to drift into a difficult borderland country. To reclaim these for medical science—in theory and in practice—is never an easy or a simple task. It needs large faith and courage, but it is one of the necessary works of our time, in the prosecution of which the student of the past and of contemporary medicine will not lack example and encouragement.

It has not been given to many men to inaugurate such a work, to build out of chaos an established order. It needs a combination of rare qualities — imagination to conceive and foresee, constructive ability,

courage and perseverance to achieve. When the task has been accomplished, the difficulties are forgotten. In five years, when death came to him at 50 years of age, the work of Hyde was done. The weak and scattered and undeveloped personal units in this branch of medicine were gathered together, and the foundations of the science and art of balneology in Great Britain were once for all securely laid. It is said that Napoleon Bonaparte, in the retrospect of his life, regarded the constructive work in his laws as his greatest achievement. "I shall go down to posterity," said he, "with my code in my hand." He may have recognized that the praise of others, and even the sweetness of reward, are little things compared with the smallest creative work. But it is the duty of those that come after to engrave the records. Therefore it is well that we in this Society should cherish the memory and the example of Samuel Hyde. Hyde seized the occasion that came to him, he did his work to the utmost of his power, and became a builder in the fabric of medicine.

Sixteen years have elapsed since the events of which I have spoken, and the young Society, after a happy and vigorous infancy, has taken its place in the medical family, as a representative Section of the Royal Society of Medicine. It has seemed to me that I could not do otherwise in these lectures, which are given in commemoration of our late friend, than to endeavour in the light of present knowledge to trace the outlines of the science and practice to which he devoted his life.

The association of the medical science of climates with that of baths and waters is not accidental, nor founded only upon a convenient grouping of two chief modes of physical therapeutics. It is a real and essential connexion, for whilst the influence of climates often operates alone, it is inseparable from the action of baths. In truth, the climatic factor enters into every balneological equation. At every spa the influence of the waters and baths and of the local climate are inextricably mingled. Whenever a patient is submitted to baths or waters the climatic factor is an accessory, and sometimes a dominant, influence. For this reason, the study of medical climatology, both in its general principles and in its local and special applications, can never be overlooked by the spa physician.

Under the name of *climate* we have to do with a vast assemblage of powers that are, or may be, capable of curative application. The local variations of sea and land, the whole range of the solar radiation, visible and invisible, the atmosphere itself, to which living beings are more responsive than the most sensitive of our instruments, aqueous vapours, winds, soils and altitudes, are among the many climatic factors

which exert an effect upon the physical, and indirectly upon the mental, condition of invalids. The knowledge of the effects of climate in different conditions of ill-health is still very imperfect, although greatly extended in the Victorian Age by an army of observers. Both meteorological and clinical data are being continually accumulated, such as those that show the effects upon health of low temperatures in the Arctic, of insolation, of various atmospheric pressures in mountainous regions, of different degrees of humidity, whether in marine or insular, or in continental or desert climates. By other observers the incidence and evolution of disease in the different climates of the world are being gradually mapped out. In time to come, as a result of long-continued and patient study, a series of climates will undoubtedly be formulated as favourable to the involution of a series of chronic maladies. By this means the climatic forces will be more frequently invoked, and with far more precision that is possible to-day.

Already medical climatology stands upon an assured footing. No doubt is ever raised as to the "beneficial effects of a change of air," although we may still be unable to explain its *modus operandi*. Here, as elsewhere, experience was for a long time the sole guide. Now a young science is rapidly advancing, alike in growth and in medical and public recognition. It has never suffered either from the advocacy of enthusiasts nor from the mistrust of wise men. It deals with powers that it is impossible to deny and comparatively hard to misuse. It has, therefore, no prejudice to overcome and no misfortunes to mar its future.

I can only here make a brief allusion to the *climatic factor in bath treatment*. The various spas, both British and foreign, enjoy a great variety of climates, and it would be possible, and indeed desirable, that they should be grouped according to their climatic characters. Many waters and baths, apart from the climate, produce, with minor individual differences, the same general effects. The climate is often, therefore, the determining factor in the choice of a particular spa for invalids—and in this matter the general condition and temperament of the individual must be considered as much as his malady. Moreover, an appropriate climate will reinforce the effect of the spa treatment, as an unsuitable one will antagonize it. This applies with especial force to cardio-vascular and nervous disorders. A large number of patients so affected are benefited more than by any other form of treatment by subthermal baths, still or gaseous. Of these cases, some should never be sent away from home for treatment; others do best in the temperate and bracing climates of our own island; some require in association with bath treatment the cooler temperatures of northern latitudes or sub-Alpine

stations; and for only a certain number is the summer climate of warm valleys appropriate. The question of *altitude* should be particularly considered in its influence on the action of baths. Among the thermal baths of Europe there is a wide available range, from 100 to 5,000 ft. It may be noted here that for the treatment of circulatory disorders, Buxton, Harrogate and Llandrindod all have a suitable medium elevation, and that Strathpeffer, although nearer to sea-level, has the compensating advantage of a more northern latitude.[1]

Hot or thermal baths are best borne in cool places. Indeed, in the case of delicate persons they can only be taken with safety in a cool climate. Otherwise, the enervating effect of heat, added to that of the baths, may bring on a serious condition of what may be called " thermal debility," which is sometimes prolonged for many months, and may even be fatal. Thermal debility, which is the effect of an excessive or too prolonged thermal influence, is a too common and undesirable result of a course of baths. Among the many examples that have come to my knowledge I have sometimes thought that the fault lay quite as much in a bad choice of climate as with the baths themselves. I need not apologize for this incidental reference to what is in truth the most serious danger of spa treatment. We know that heat is one of those powerful stimulants that very rapidly becomes a depressant. Its first effect upon the skin is vascular dilatation and increase of sweat, resulting in compensatory loss of heat. This pronounced and obvious action cannot escape notice, but the reaction of heat comes more slowly than that of cold, and sometimes in a gradual and insidious manner, and it may be after the treatment has ceased. The lessened heat production from thermal applications, the lowering of blood-pressure, and the elevation of the temperature of the blood from prolonged and repeated hot baths, all diminish nervous and muscular energy, and bring about exhaustion of the spinal and cerebral centres and the heart. It follows that the reaction to heat must in practice be avoided with as much care as the reaction to cold is encouraged and promoted.[2]

In many conditions of senile weakness and premature degenerative changes the indication is for a mildly tonic and sedative climate. It is therefore improper, as Dr. Leonard Williams has pointed out, to submit invalids of this kind to over-stimulating (" bracing ") climatic influences. The only appropriate remedy, whether of bath or climate, must be temperate, soothing, sedative.

[1] *See* Hyde, *Journ. of Baln. and Clim.*, 1898, ii, p. 128.
[2] *See* Hyde, loc. cit., p. 133, and R. F. Fox, p. 174.

A similar relationship may be noticed between climate and the practice of hydrotherapy. There are in our country many climatic stations, by the seashore, on the moorlands, or among mountains, having various atmospheric qualities—sedative or stimulating, or both —which are highly appropriate for this practice. Hydrotherapy is, as we know, much employed in connexion with systematic treatments of many kinds, sometimes in sanatoria occupying bracing mountainous situations, as in the Scandinavian countries. The combination of the climatic influence with simple baths is of great value in many cases for which spa treatment is not indicated. In view of these facts it is to be hoped that members of this Section practising in British climatic resorts will be encouraged to make a more extended trial of hydrotherapeutic methods.

No event in the history of medicine during our lifetime has been more remarkable than the widespread movement throughout Europe in favour of *physical methods of treatment.* A new and almost startling confidence in natural agencies for the cure of disease has been revealed in many places and in many shapes, sometimes, no doubt, in ways that may be a little unbalanced and irrational. If there were nothing more solid than such an exhibition of faith it would still, I submit, be worthy of respectful study from those who are charged with medical responsibilities. The case is far otherwise. The growth of this movement, and its recognition in the public and medical mind, actually corresponds with and depends upon certain great and striking additions to our knowledge. We have gained during this time not only a more accurate comprehension of the processes of disease, but a much fuller knowledge of the energies in Nature by which we are surrounded.

The methods of physical therapy seek to bring these powers into contact with the organism, in order to stimulate or to modify the failing or perverted energy of its tissues. To the question of treatment by contact, and to the function of the skin as the organ of treatment, we shall return later in these lectures. Let it suffice to say here that many new *therapies*, to use the French expression, have been founded upon this principle. For an example of the work that is now being done in these subjects, let us take the *Proceedings of the Third International Congress of Physiotherapy* held in Paris last year. They make a bulky volume of more than 500 pages, having sections devoted to treatment by *movements*, to *hydrotherapy*, *cryotherapy*, *thermotherapy*, *aërotherapy*, to general medical *climatology* and *marine treatment*, to *medical electricity*, *radiotherapy*, to *medicinal waters*, and to *diet*. In

this work there is a single contribution by a British physician on a climatic subject, with many valuable papers from France, Germany, Austria-Hungary and Holland. The Italians hold from time to time a similar congress in their own country. In the volume to which I refer there are valuable reports, among many others, upon hydrotherapy in the treatment of *neurasthenia*, of the effects of thermotherapy upon *arterial tension*, of local thermotherapy in *joint affections*, of the effects of *mountain, sea, and forest climates*, of *climatotherapy* in *cardio-vascular affections*, of *mineral waters in intestinal affections*, of *radio-active waters*, of *sodium chloride baths*, and of *alkaline waters*. It has been well said by Professor Vierordt[1] that the recent introduction of physical methods of treatment marked an important turning point in the history of medicine. "Physical therapy," said von Leyden, "should be utilized not in the clinic alone. It must become the common property of general practitioners."

To this wide and constantly widening group the treatment by waters and by baths properly belongs. Moreover, it may justly be said to occupy the foremost place, since in the action of water are involved so many forms of energy, and since water is as respects the human body the principal vehicle of force. We cannot deny that some underlying truth of physiotherapy has given such value and vitality as they may have possessed to the many water cures in all countries past and present, wrapped up as they have sometimes been in the elaborate ritual of their cult.

I propose to examine rather critically the several factors, more or less important, which are concerned in the action of waters and baths. I shall show how the growth of knowledge during the past century has brought about, with much of good, some unreal distinctions and confusion in terminology; how uncertainty of names endangers clearness of thought, and that some modification in the existing nomenclature may be expedient in order that the whole subject may be adequately comprehended under one name. In subsequent lectures I shall describe the two great branches into which our science may be divided, first, that which deals with water simply as a vehicle of energy; and secondly, that which is concerned with medicinal springs. Lastly, I shall note the place that has so far been assigned to the doctrine of water and waters as a subject of teaching in the medical faculties of Europe and America.

The medical use of springs and of baths comprehends a bewildering variety both in the potable water and in the methods of its application.

[1] Vierordt, *Therapie der Gegenwart*, Berl. u. Wien, 1903, xliv, p. 481.

Hitherto, this too obvious diversity has rather obscured the truth that all such treatments have certain essential characteristics in common. The action of pure, sweet and fresh water is the first of these common factors. The quality of *freshness* is of the first importance in the administration of waters, and springs differ widely in respect of this quality. Dr. Neville Wood[1] has well asked, "What is it that makes the water of a mountain stream so exhilarating? Is it the fatigue of our climb when we quaff it, or the mountain air we are breathing, or simply aëration? All these, I think, and something more; but *what* more I do not know. My own belief is that this unknown quality—let us call it freshness—is a substantial factor in the benefit derived by patients from drinking mineral waters at their source." It is not necessary to accept without reserve the theory of Armand Gautier that the water of certain thermal springs is in a real sense chemically "new," having the heightened activity of nascent matter. But it is common knowledge that the flowing, or in the old parlance the "living," fresh water of the fountain has a different property to that of the same water when still, contained in reservoirs or bottled. Consequently certain waters produce their most powerful effect when employed either for drinking or externally at the source. I may here quote an observation with which Dr. Quiserne has favoured me, having reference to the waters of Bagnoles de L'Orne. The Grande Source rises from primary rocks at 79° F. It is limpid, very slightly mineralized, radio-active, and charged with nitrogen, argon and traces of helium, and is besides unctuous with silicates and organic matter, chiefly living algæ. Dr. Quiserne has experimented with baths of this water fresh from the spring, and also when preserved for various periods of days. He tells me that after four days the water is of no good. When the water is fresh, or nearly fresh, a bath with a certain temperature and duration produces in a healthy man a marked elevation of capillary pressure. This effect is no longer observed when the water becomes stale.

The first factor in spa treatment, in every shape and form, is therefore *water*, or moisture, with all its proper actions, whether taken internally or outwardly applied. The therapeutic effect of this ever-present element can usually, with our present knowledge, be determined with accuracy.

The second common factor in these methods of treatment is not less important, namely, *heat*. For warm-blooded animals living in a cooler medium, heat is measured relatively to the temperature of the

[1] "Spa Treatment," 1910, p. 44.

body. *Plus* or *minus* applications of heat are naturally inseparable from waters, whether internally or externally used. Baths act in the main as vehicles of energy, of which heat is the chief form. Water is in respect to the human body the commonest and most convenient medium of energy, but it is convenient to include in the category of bath treatment other media, such as dry sand and air, by which heat can be abstracted or conveyed. Again, inasmuch as baths of different kinds embrace the chief forms of heat treatment or thermotherapy, it is convenient to include with baths the other forms of thermotherapy such as insolation, thermo-penetration and artificial radiant heat, for which no physical medium is needed. It follows that in this division of our subject ought to be placed all our knowledge with reference to the effects of temperature (plus and minus) upon the functions of the body in health and disease: notably its effects upon heat production and conservation, and upon the processes of tissue change, and especially on the dissociation of tissues or anabolism. All these actions are excited through the skin. This, again, will lead to a deeper study of the functions of the skin as the most extensive and sensitive organ of the body. I have long believed that when the relation of cutaneous conditions, and especially subnormal cutaneous temperature, to chronic disease has been more accurately ascertained, the use of thermotherapy by means of baths will be widely extended. Take, for example, hot pediluvia, which are so much employed at the baths of Mont Dore and elsewhere in France, in order to produce an effect that was long ago described as "derivative" or "revulsive." In this country there are many persons in whom the cutaneous circulation is permanently defective, and the surface temperature, more particularly of the feet, sinks to ten or fifteen degrees below normal. Systematic foot-baths at a temperature of 110° F. to 120° F. provide a means of restoring the peripheral circulation and relieving high arterial tension in many cases. It is clear that the thermal effects of baths, whether general or local, are deserving of attentive study.

In addition to the aqueous and thermal influence, it should not be forgotten that in all immersion baths there is the factor of *hydrostatic pressure*, which is not without importance in its effect on circulatory affections.

It is therefore evident that waters, of whatever kind and however employed, internally or externally, exhibit certain general qualities and actions, which it should be the first aim of our science to define and describe; and which every spa physician must acknowledge lie at the foundation of his practice.

We have next to notice the factors that depend upon the particular qualities of medicinal waters. Each spring has its own proper *ingredients*, and these must have their pharmacological effects, beneficial or otherwise. Under this designation we find certain gases, salts, acids, metallic elements, ferments, and other organic matters, all of which belong to medicinal springs, and the study of which must therefore be germane to the science of waters. We have also to take account of the particular *physical properties* of waters. Their temperature, electrical condition, tonicity and radio-activity fall under this heading. Important researches during recent years have thrown much light upon the physico-chemical properties of medicinal waters, particularly of the thermal springs, and still much remains to be learned.

Thus we may conclude that the medical doctrine of water embraces two great branches. The first concerns itself with the use of this element in medicine solely as a vehicle of energy, whilst the other branch has to do with the various ingredients and physical properties of medicinal springs, and of the emanations and deposits in connexion with springs, and with their chemical and physical action upon the body, whether taken internally or applied either locally or generally to its surface.

We are now in a position to inquire what name properly attaches to this elemental science, simple in its nature but which yet embraces an art or treatment so wide in its range. Although the science itself is of modern growth, the medical use of waters is as old as Hippocrates. Their efficacy and that of baths has been proved and recognized at every period in the history of medicine. Not only so; they have survived every vicissitude of medical doctrine, and show no sign of perishing by disuse. A distinction is always to be drawn between a treatment or art of any kind, and the science or orderly knowledge that may or may not substantiate it. The art must be practised though it rest only on the experience and wisdom of the physician. If it runs counter to no ascertained facts it must be admitted and allowed to await its scientific justification hereafter. But the sick man cannot wait. At the present moment we have in all civilized countries an extensive and varied medical practice of waters, resting not upon one but many correlated orders of fact. It has been truly said that no single science, unless it be mathematics, can by its very nature stand alone or be sufficient to itself. The unity of truth forbids such independence. Is this not eminently the case with the medical sciences? That which deals with the medical uses of water furnishes a good illustration of the intimate relationship between natural orders of knowledge, for it is

based on geology, chemistry, electricity and pharmacology; and upon the physiological and pathological laws governing the reaction of the living body to many kinds of stimuli—hydric, thermal, chemical, electric and mechanical. Our concern is with the doctrine relating to the medical employment of these many and various agencies to be found in waters of whatever kind. It is for this reason that the use of water and of waters in medicine must be regarded as the first and most important branch of physical therapeutics.

What single comprehensive name can be applied to such a science? It is surely unnecessary to argue the convenience, nay the necessity, for such a general term. To meet the exigencies of the case such a name must satisfy certain necessary requirements. It should be inclusive of all the medical uses of water; it should be distinctive, and it should also, as far as possible, conform to, or be capable of, international use. It has seemed to me that the time may be ripe for reconsidering in this country the nomenclature of this branch of medical science. The subject-matter has indeed undergone so rapid development even in our time that the terminology of the last century has become inaccurate and even misleading. The varying connotations given to familiar words cause an unnecessary confusion, and the fundamental unity of the whole subject may be overlooked for want of a simple and inclusive name.

The various current usages with reference to nomenclature may be best set forth by a brief historical examination. Let us begin with the familiar name by which we are called in this Section—Balneology. In the Oxford Dictionary, balneology is defined as the "scientific medical study of bathing and medicinal springs." The word appears to be a new one, and was but seldom used before the middle of last century. My earliest example is in 1840, when Krahmer, of Leipzig, published a review of the "balneological" literature of the preceding year. Löschner brought out his "Beitrage zur Balneologie" at Prague in 1845, whilst in 1849 Bückner used the same word in the clinic at Utrecht, and G. L. Ditterich published at Munich his work on "Clinical Balneology." After this date the literature of systematic "Balneology," or "Heilquellenlehre" (health-spring-lore), as it is sometimes called in Germany, grew rapidly. From 1850 to 1870 appeared the works of Merkel and Flechsig at Leipzig; Rinne at St. Petersburg; Men, Braun, Jacob, and Helfft at Berlin; Seegen, Dietl, and H. Kisch at Vienna; Schaer at Bremen. About the last-named date the words "balneology" and "balneological" found their way into this country, and until the present time have been generally employed in England and in Northern

and Central Europe. So far as I am aware, in spite of their wider dictionary meaning, their connotation is strictly limited by all authors to the properties and uses of *medicinal* springs. The various actions of water and heat are excluded. Although, as we have already seen, these form essential factors of all treatment by means of water and baths, they have been made to form a separate study under the name of Hydrotherapeutics. In France, Italy, and Spain the term "balneology" has not found acceptance, although the expression "balneotherapy" is sometimes used as descriptive of a treatment.

It is true that derivation is a poor guide to the meaning and use of words, even in science; but the purist might urge that balneology (from *balneum*, a bath) should rightly have to do only with the *external* use of water. Custom has, on the one hand, *restricted* its application to the use of medicinal waters, and, on the other, *widened* it to their employment internally as well as in the form of baths.

The conception of "bath treatment" and of "bath doctors," with which the word balneology is historically associated, takes its origin from the Middle Ages, when the use and abuse of baths throughout Europe were, like wisdom and folly, strangely mingled together. The "bath-keepers," according to Baas,[1] appear to have arisen in the twelfth century. They were organized in guilds, and taught their skill to apprentices in a course of instruction lasting from two to four years. Their golden age extended from the twelfth to the fifteenth centuries. One Hans Foltz, a learned barber and bath-keeper, who flourished in the last quarter of the fifteenth century, is considered to be the first German writer on balneology. The bath-houses, after a long and often doubtful reputation, seem to have disappeared in the sixteenth century.

Many cases besides the one in point could be quoted in which words have obtained a misleading and sinister implication, and have been injured for their legitimate use. A more serious objection to the claim of balneology to be a proper name for the whole science of waters is that it is too narrow, and that modern usage has confined its connotation to the medicinal spring.

The treatment by means of pure or sweet water has, during the last century, received various names. I find the term *hydriasis* used by Roner, of Leipzig, in 1832. The adjective *hydriatic*, and the more correct *hydriatric* have, since that date, been occasionally employed, more particularly to designate cold water applications.

I am unable to trace the source of the words *hydropathy* and

[1] "History of Medicine," Eng. Trans., 1889.

*hydropathic.* They have been, and are, used to describe the special methods which originated in Silesia in the third decade of the nineteenth century, and the systems of treatment that arose out of them. In 1836 appeared Herzog's "Handbook of Hydropathy," and in 1838 we find the word spreading into Italy, a country which has always been among the first to adopt physical methods of treatment. In that year Bertini, at Turin, published his work "*Della medicina idropatica.*" For the most part, although occasionally used in medical literature, these rather barbarous terms have been restricted to the particular system of water treatment inaugurated by Preissnitz, to which we shall have to refer later.

The earliest use that I can find of the word *hydrotherapy* occurs in 1834, when Eck wrote on "Hydrotherapy in Croup." From 1840 to 1850 a very large number of acknowledged medical writers, such as Engel, Lubanski, Baldou, H. Scoutetten, Schedel, Fleury and Julien in France, Sauvan in Warsaw, Munde in Leipzig, Krause in Dresden, Kneeland in America, and T. Smethurst in London, adopted the same nomenclature; and we find the words hydrotherapy or hydrotherapeutics generally used from this time onwards with reference to the medical use of sweet water. In 1861 appeared the famous work, by Ernst Brand, on the "Hydrotherapy of Typhus," and in 1863 the systematic treatise of Dujardin-Beaumetz. The great Vienna school of hydrotherapy is represented by the famous work of Winternitz, first published in 1877, "The Physiological and Clinical Basis of Hydrotherapy." In this book, which was subsequently translated into French, Spanish, Italian and English, the foundations of the science of water were well and truly laid. Thenceforward we find an ample and growing literature in the French and German languages as to the medicinal employment of water, under the name of hydrotherapy. We have, for example, in the *Proceedings of the Society of Medical Hydrology of Paris*, reports upon the French *hydrotherapeutic cliniques*, and in Italy papers on "*il cura idroterapica*," in their national congress of hydrology and climatology. The Dutch, Germans, Russians, and Scandinavians have used the word in the same sense; whilst in America the modern science, under the same name, hydrotherapy, found expression in the work of Baruch in 1890.

According to the Oxford Dictionary, hydrotherapeutics is defined as "that part of medical science which treats of the therapeutical application of water: the practice of this; water cure." In the works which I have quoted there has been, so far as I am aware, no question of applying this term to medicinal waters.

I must now refer to a tendency in some of the most recent writers[1] on hydrotherapy to enlarge the connotation of that word. It is even proposed to include under hydrotherapy the whole science of waters and of baths. I think it is not difficult to trace the origin of this proposal. For more than a generation the accurate study and practice of hydrotherapy had proved the efficacy of simple thermal applications in many disorders. As the part played by these great primary and general properties of all waters became evident, so the secondary and particular qualities of the springs naturally waned in estimation. The great reliance that was formerly placed upon the cutaneous absorption of the ingredients of mineral baths was shown in many cases to be unfounded, by the discovery that comparatively little absorption of saline matter takes place through the uninjured skin. And the fact that widely different medicinal springs have been supposed to exercise the same effect, and are constantly resorted to for the same ailments, was held to show not only the importance of those qualities which waters have in common, but the insignificance of those in which they differ. The proposed nomenclature is therefore not so much an extension of the range of hydrotherapy as a denial of the supposed active qualities of the medicinal spring. I submit, with all deference, that it is founded upon an imperfect and hasty generalization. Moreover, I would venture to say that hydrotherapy is not the name of a science. It signifies quite correctly an art or treatment. For more than half a century the word has been consistently applied in the medical literature of several languages to the use of sweet water. It would therefore violate an established and convenient usage, and introduce confusion, if it was now sought to employ it so as to include the particular and distinctive properties of the medicinal spring. In a recent letter Dr. Frankenhaüser, Lecturer in "Balneology" at the University of Berlin, writes me: "In Germany, hydrotherapy and balneology are sharply divided departments of medicine. By hydrotherapy we understand the application of hot and cold water. With this is connected thermotherapy, steam, hot air, and incandescent light baths. By balneotherapy we understand the therapy of mineral waters, in which, as a rule, different temperatures are of small account, but the chemical characters of the waters, climate, diet, &c., are of importance."

By a process of exclusion we are led to the belief that the proper name for the whole science of water and of waters in medicine is *medical hydrology*. The word is occasionally met with in the seven-

[1] *See* Guy Hinsdale in "Hydrotherapy," Philad. and Lond., 1910.

teenth and eighteenth centuries. The earliest instance of which I am aware occurs in the work of W. Simpson, an English writer, in 1670, "Hydrological Essayes, or a Vindication of Hydrologia Chymica, being a further Discovery of the Scarborough Spaw, and the right use thereof." In his "Athenæ Britannicæ" (1716), in the dissertation on "Physick," vol. vi, part iii, p. 56, M. Davies refers to the "Astrological and Hydrological Branches of Physick." Zedler's "Universal Lexicon" (1735) describes *hydrologia* at length and recognizes the medical, chemical, physical, &c., systems of hydrology. I find also in 1772 a work by M. Monnet, entitled "Nouvelle Hydrologie," &c., dealing with sweet waters, sea-water, and natural salts. In the renaissance of this science which occurred in the nineteenth century the Italians bore an early and a distinguished part. The work of Pietro Lichtenthal, "Idrologia Medica," was published at Milan, in 1838; the "Hydrologie" of Wulzinger at Passau, in 1839. In 1851, Durand-Fardel adopted the same name in his communication to the *Union médicale* of Paris, and 1854 witnessed the foundation of the first Society of Medical Hydrology, also at Paris. In the years from 1871 to 1877, the *Jahrbuch für Balneologie, Hydrologie und Klimatologie* was commenced in Vienna, the *Journal of Hydrological and Climatological Medicine* at Florence, and the Spanish Society of Medical Hydrology was founded at Madrid. In 1880 the first *Revue d'Hydrologie* appeared in Paris. A little later, in 1886, the first International Congress of Hydrology and Climatology was formed at Biarritz, and has continued its meetings in various countries since that date. Two years afterwards an Italian congress with the same designation met in Rome. The *Archives générales d'Hydrologie* was published in Paris, in 1891, and the *Hidrologia medica* at Valencia, in 1896. We may also note that the various international congresses of medicine have included a Section of Hydrology.

It is therefore evident that for many years the name has been widely employed on the Continent of Europe. A literature of medical hydrology, including the whole subject of hydrotherapy and of medicinal springs, has grown up, particularly among the Latin races, and periodical meetings of congresses under this name in different countries have done much to promote and co-ordinate its study.

It may be asked whether this use of the name hydrology is correct in etymology? Like others words it has undergone a growth in meaning during the last hundred years. The great English dictionaries from Johnson to Murray define it as the science which treats of the nature and properties of water. In this matter the Italians are again first in the field. In Tommaseo and Bellini's dictionary (1869),

hydrology is "the part of science dealing with the properties and uses of water," and *medical* and *mineral* hydrology are specifically recognized. In Littré's great dictionary of the French language (1875), hydrology "is that part of natural history which treats of waters and their different species," and in the dictionary of the Spanish Academy (1878) it has the same significance. Ten years later (1888) Hatzfeld's dictionary defines the word as treating of waters, "and especially of mineral waters." In the same year the New Sydenham Society's Lexicon of Medical Terms includes under the word hydrology not only the nature, quality, distribution and laws of water, but also its *uses*. Lastly, in Foster's "Encyclopædic Medical Dictionary," published in New York in 1891, it is defined as "that department or division of medical science which treats of the use of waters, especially mineral waters, for therapeutic purposes."

It would seem, therefore, that philology offers no bar to our use of the word in a medical sense. And I venture to submit that the expression "*Medical Hydrology*" satisfies the three essential conditions with which we set out. That it is distinctive cannot be denied; that it is sufficiently comprehensive is also evident; and it is also, as far as may be, in conformity with international usage. We may, accordingly, define the name as follows: "Medical hydrology is the science of waters, vapours, and mineral or organic deposits in connexion with waters, as used in medicine, both by internal administration and in the form of baths and applications."

The CHAIRMAN (Sir Hermann Weber), after remarking that Dr. Sunderland ought to be regarded as the co-founder of the Balneological Society, expressed the hope that by means of the Hyde Lectures the knowledge and interest of the profession in the subject of treatment by baths and climates would be increased and stimulated. Long experience had shown him the necessity of improving the conditions of the spas and health resorts in Great Britain. Invalids complained of the want of amusements and exhilarating influences at the English resorts, and there was a spark of reason in those complaints. No trouble or expense should be spared to render the stay of patients agreeable, by embellishing the neighbourhood with gardens and easy walks, sheltered seats, open-air restaurants and good music, and by games, concerts, and other social amusements. The spa physician should devote himself entirely to his patients by treatment and sympathy, giving them something to do from morning till night—beginning with an early rise, with drinking a suitable water, with breakfasting, if possible, out of doors, with walking, bathing, massage, or gymnastics, according to requirements. The physicians should help the owners of the spas to produce an air of cheerfulness round the whole place.

# Balneological and Climatological Section.

May 17, 1911.

Sir Dyce Duckworth, Bart., in the Chair.

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THE SAMUEL HYDE MEMORIAL LECTURES.

## Outlines of Medical Hydrology,

*The Science of Water and of Waters, with a Plea for its Practice and Teaching in Britain.*

By R. Fortescue Fox, M.D.

### LECTURE II.—MODERN HYDROTHERAPEUTICS: A RÉSUMÉ AND AN APPRECIATION.

In a previous lecture I discussed the several factors that enter into the medical use of water and of waters, and proposed that we should adopt in this country the simple designation *medical hydrology* as a comprehensive term for the whole science. To-day we are concerned with that branch of medical hydrology which has to do with the use of water solely as a vehicle of energy, and to which in a copious literature extending over seventy years the name hydrotherapeutics or hydrotherapy has been consistently applied.

I propose to recall the events by which, first of all in recent times in this country, and afterwards on the Continent of Europe, the knowledge of the operation of water upon the human economy was made known. We shall see how the foundations of a true scientific theory and practice were laid by an English physician in the seventeenth century, and how, at the end of the eighteenth century, Wright and Currie built upon these

foundations; how this knowledge was carried into Germany, how there it took root, and grew into a goodly body of doctrine and practice founded upon experimental research, and how, in consequence, the new science and art of *hydrotherapy* has taken its place in the treatment of both acute and chronic diseases. We shall then consider briefly what are the rational principles of modern hydrotherapy in order to appreciate the position which it now occupies in therapeutics; and lastly, shall enquire how Great Britain compares at present with other countries in regard to its practice.

The medical use of water was first seriously advocated in this country in modern times by Sir John Floyer, physician, at Lichfield. His work, "An Enquiry into the Right Use and Abuse of the Hot, Cold, and Temperate Baths in England," was first published in 1697, and his "Psuchrolosia, or the History of Cold Bathing, both Ancient and Modern" (published in 1722), was dedicated to the College of Physicians in London, "whose great endeavours," said he, "are to revive all practices useful to mankind, as well as to invent new ones." With much learning Floyer cites the employment of sweating baths and of cold baths by the ancients; points out that a hot regimen is required for hot countries, and a cold regimen for cold countries; affirms, in opposition to the teaching of that time, that the benefits obtained from "Holy Wells" were due to the physical virtue of the springs and to God's blessing on a natural use of them, and relates in detail the beneficial operation of cold, and especially of tepid, baths under his own observation at Lichfield and at Buxton. It is interesting that the value of subthermal baths at a temperature a little below blood-heat was recognized at this early date, although we are only now, after 200 years, beginning to understand their operation. In England, Floyer's work seems to have made but little impression in medical circles, although lay writers advocated the same thesis, sometimes with more zeal than knowledge. Of these the chief was John Hancock, whose book entitled "Febrifugrum Magnum, or Common Water the Best Cure for Fevers" (1723), ran through seven editions in one year. A treatise by John Wesley, the founder of Methodism, on "Primitive Physick, or an Easy and Natural Method of Curing most Diseases" (1747), also enjoyed a very large circulation. In Germany the observations and reasonings of the English physician fell upon fruitful soil, and his doctrine found an able exponent in Friedrich Hoffmann, professor of medicine at Halle. His essay on the "Nature and Properties of Water" was published in 1761. The Hahns in

Silesia, Oertel, van Swieten, and Hufeland (1762-1839), widely extended the use of cold and tepid applications. Meanwhile a few physicians in England, among whom were *Mead*, *Cheyne*, *Huxham*, and *Pitcairn*, continued to employ and to recommend similar methods.

In 1779 Dr. William Wright, afterwards President of the College of Physicians in Edinburgh, opened a new chapter in hydrotherapy by presenting to the Medical Society of London his observations on the use of the cold bath in small-pox and yellow fever, made upon an expedition to the West Indies. Subsequently he introduced into Scotland the same practice in his treatment of fevers. It is interesting to note that in France at the present day one of the chief procedures in hydrotherapy is described as the "Douche écossaise." Dr. H. Forestier, of Aix-les-Bains, in a recent paper[1] has furnished the long-sought explanation of this curious fact. Among the pupils of Cullen in Edinburgh about the year 1787, was one Joseph Déspine from Savoy, which was then united to the kingdom of Sardinia. Observing the good effect of the cold shower bath, at that time employed by Wright and others in Edinburgh, he introduced it first into the baths at Aix-les-Bains (of which he became the Medical Director) under the name of the Scottish Douche. In France many refinements in temperature, pressure, and technique have been introduced in the course of years, and have made the Douche écossaise an instrument of precision. It may seem a curious coincidence that it fell to my own lot, exactly a century after this method was carried into France, to re-introduce a descendant of the Douche écossaise into Scotland.

Following Wright, and in some sort inspired by him, the more famous Dr. James Currie, of Liverpool, published in 1797 his "Medical Reports on the Effect of Water, Cold and Warm, as a Remedy in Fever and other Diseases." His attention, like Wright's, had been attracted to the effects of temperature in health and disease. The work of Currie had especial reference to the use of affusions and baths in typhus fever, then a frequent and fatal epidemic disease. His curious apology for the use of such words as *reaction* and *tone* doubtless indicates a prevalent misuse of these innocent terms. Happily here, as elsewhere, time has removed some stumbling blocks, and these words and the realities which they signify, hold a necessary place in any reasonable account of the actions of baths. Currie's teaching of what we may term cooling

[1] *Revue médicale d'Aix-les-Bains*, February, 1911.

hydrotherapy was based upon the subtraction of heat, upon the sedation of the nervous system, and the consequent mitigation of the febrile process, and, as a result, the increased vitality of the tissues. As with Floyer a century earlier, so with Currie; his teaching made comparatively few converts in England, but was zealously followed abroad. The methods of Currie were introduced by Franck into the hospitals of Vienna in 1803, and it is said that the typhus epidemics of 1811, 1812, and 1814 were largely treated by cool baths.

During the nineteenth century the practice of hydrotherapy rapidly extended in Europe, but it was above all in Austria and Germany, where the works of Floyer and Currie bore their first harvest, that the new treatment was most widely practised and taught. The evolution of hydrotherapy in Germany and Austria in the past century forms a singular and instructive episode in the history of medicine. The time was ripe for revolutions in treatment when Vincent Priessnitz, in 1830, set up on the Gräfenburg his establishment for a water cure. This Silesian peasant farmer, led by his own untutored genius, at first by observation of animals, formulated a regimen of simple habits, with baths and applications, which proved itself to be of undeniable benefit to many persons, especially to sufferers from chronic ailments. It must not be forgotten that he employed vigorous exercise, unstimulating diet, and perspirations, as well as cold water both internally and externally. These methods became extraordinarily popular. Many similar institutions were founded in Continental countries, and the treatment originated by Priessnitz found its way into England. An establishment was set up at Malvern in 1843, and at Matlock in 1852, and the treatment at these and similar institutions assumed a special and systematic form under the popular name of "Hydropathy." The movement may, perhaps, be regarded as a protest not only against an artificial pharmacology, but against the general therapeutic scepticism to which this pharmacology had led in the middle of the last century. For the attitude of accepted medical authorities in regard to treatment was at that period expectant, and inclined to be sceptical and even nihilistic.[1] Oesterlen, in his preface to a "Handbook of the Materia Medica" (quoted by Baruch), remarks that "Nature supported by hygiene and dietetics can accomplish what our drugs cannot. Materia Medica has never yielded and never can yield these positive and useful results."

[1] *See* J. H. Pratt in "The Development of Scientific Hydrotherapy," *Boston Med. and Surg. Journ.*, 1904, cli, p. 201.

It was Dietl who said, "There are no true therapeutists, there are only optimistic physicians." An exaggerated confidence in specifics and in drugs generally had brought about this reaction, both in the medical and in the popular mind. It is evident, therefore, that the ground was well prepared for the advances of any physical method that appeared to offer a substantial hope of combating disease. Unfortunately this treatment, on the whole and in most cases, fell into the hand of irregular practitioners, with whom "hydropathy" became an exclusive system, and the profession at large was estranged from its employment. The new system shared the fate of every other system in medicine. It was too systematic to be finally true. Enthusiasm and zeal could not make up what was lacking in knowledge and breadth of view.

We may here note that the use of hot air and vapour baths is of ancient origin. Vapour baths were introduced into England from the East, and had considerable vogue in England during the latter half of the eighteenth century. They were, as we know, employed in early times on a vast scale by the Greeks and Romans, both for hygienic and medical purposes. In the form of "hot-houses" they were much used throughout Europe in the Middle Ages for the treatment of leprosy. The Finns and Russians, and the Celts of Scotland and Ireland, continued to use them, but in Germany, at the time of Priessnitz, they were comparatively unknown, and so formed no part of his system. In England, where they were more familiar, they soon became an essential part of the hydropathic treatment. The hot air or Turkish bath in its present form was brought into England about the year 1860.

But in Germany, upon the heels of Priessnitz, began another and a very different movement. The effects of water upon the human body were for the first time submitted to experimental research. A long series of investigations was commenced, having for their object to ascertain the effects of water at different temperatures, and of mechanical stimulation, upon the circulation, upon the nerve-centres and upon the general metabolism. The wonderful phenomena of the *reaction* of the living tissues, and especially the all-important *reaction to cold*, upon which the whole effect of cold baths depend, were now for the first time accurately observed. A beginning was also made in describing the variations of reaction in health and disease. As a result of very many experimental and clinical studies the indications for baths of different temperatures have been provisionally laid down, and rules of practice formulated. Among a great number of workers in Germany

and Austria who have contributed to this research, Hofrat Professor Wilhelm Winternitz, of Vienna, holds the foremost place. The name of Winternitz is indeed so closely and justly associated with the history of modern hydrotherapy that it seems fitting to give here some account of this remarkable man. Born at Josefstadt in Bohemia, in 1834, he graduated in medicine, and entered the navy at 21 years of age. Like his great forerunner, Wright, he was first led to apply affusions and baths in an epidemic of acute pyrexial disease upon a warship—not as in Wright's case for yellow fever, but for influenza. Gratified with his results, he studied the classical English works of Wright and Currie. Later he proceeded to the Gräfenburg, with the set purpose of putting the methods of Priessnitz upon a scientific footing. It was no small task, but we know that he succeeded in this endeavour. By the researches and observations of a lifetime, he has provided a physiological basis for hydrotherapy, and has established *inter alia* the cardinal fact that the primary action of baths is exerted upon the nervous system. In due time he was appointed Lecturer in Hydrotherapy at the University of Vienna. With Oppolzer, he opened, in 1862, the first clinic and institute of hydrotherapy at Kaltenleutgehen, near Vienna. This has rapidly grown from small beginnings, and now accommodates 400 in-patients, besides a large out-patient department. Winternitz has also built and endowed a complete hospital for hydrotherapeutics in connexion with the polyclinic, where thirty or forty in-patients are accommodated free of charge. He has edited for nineteen years the *Blätter für klinische Hydrotherapie*, the leading journal in this branch of therapeutics, and has produced in the course of many years a multitude of monographs upon this subject. His *magnum opus* on the "Physiological and Clinical Basis of Hydrotherapy" was completed in 1879. From that time until the present day he has held the Chair of Clinical Medicine at the University of Vienna. According to his own favourite saying, with him "life is labour." He writes sometimes with a pardonable enthusiasm, but with an unequalled experience, of the extended province of this branch of physical treatment. In a recent letter to myself, he affirms his view that the treatment of the chronic infections, especially of tuberculosis, is not the least important work of hydrotherapy.

Turning to Germany, the "University Hydrotherapeutic Institution" was opened at the Charité at Berlin in 1901, and placed under the care of Professor Brieger. In 1905 it was incorporated with the

University Polyclinic, of which it became the hydrotherapeutic section for purposes both of treatment and teaching. The extent and importance of the practice may be inferred from the fact that last year between 5,000 and 6,000 persons were there treated. At Munich the Bavarian Government has added a complete and elaborate hydrotherapeutic equipment to the University clinic. Leipzig, Heidleberg, Tübingen, and Jena have also university clinics for hydrotherapy. That of Jena was founded in 1890, and has furnished opportunity for the valuable "Text-book of Clinical Hydrotherapy," by Mathes (1903).

In France cold water dressings were strongly advocated in surgery by the great Ambroise Paré as long ago as 1553. They were much employed by the army surgeons in the Napoleonic wars, in lieu of the less cleanly methods then in vogue. So good were the results, that the action of cold in local and general maladies attracted much attention, and formed the subject of several treatises, such as Tanchou's "Du froid et ses applications dans les maladies" (1824), and Lacorbière's "Traité du froid" (1839). Of these, perhaps the most remarkable was the work of Herpin, of Geneva (1844) on the action of very cold river baths. Meanwhile the astonishing results of Priessnitz were becoming known, and the French Government was petitioned in 1839 for permission to open a "hydropathic" establishment. The matter was referred to the Academy of Medicine in Paris, and a Committee was by them appointed, who reported adversely upon the treatment as then applied. One of the petitioners, Wertheim, thereupon proposed a bedside test of the new methods, which was arranged and carried out at the Hôpital St. Louis, with a favourable result. Permission was thereafter granted by the Minister to introduce this practice into France.[1] A few years later (1843) we find Professor Henri Scoutetten, of Strasbourg, commissioned by Marshall Soult to visit and report upon the hydrotherapeutic establishments in Germany. His conclusions were favourable to the methods employed, but he recommended, with proper caution, that the results should be submitted to scientific verification. In France for more than half a century this reasonable attitude has been consistently adhered to. The establishments for water treatment that have been founded in that country, and the entire therapeutic procedure, have been placed under skilled medical direction. A lay literature and extravagant and hostile claims have not darkened counsel by words

[1] *See* S. Baruch, "Principles and Practice of Hydrotherapy," 1904.

without knowledge. In France, therefore, it has happily come to pass that medical practice and research in hydrotherapy have, in the words of Winternitz, followed a "placid and unembarrassed way." This practice has therefore, to a much greater extent than in England, taken its place as a recognized branch of therapeutics, especially in chronic and nervous affections. The douche bath, which in its various forms has, as we have seen, been brought to a high pitch of perfection in France, was extensively employed by Charcot. It is more than fifty years since the first institutions for treatment of this kind were set up in Paris, under skilled medical direction. I need only refer to the well-known establishments of Dr. Beni-Barde and Dr. Keller. There is now a similar provision for medical practitioners in most of the great towns in France, and in many cases suitable baths are attached to hospitals, which are available for the use of all medical men. Hydrotherapeutic practice has also been to a large extent grafted upon the French mineral spas—a process which is extending into England. In some cases appliances which seem to us over-specialized and needlessly elaborate have been set up beside the medicinal spring. I need only mention such imposing installations as those of Vichy. There are other important stations such as Divonne, which have been set apart entirely for the scientific practice of hydrotherapy. It is worthy of note that it was in France that Schedel first taught the recovery of compensation in failure of the heart by means of cold water applications.[1]

Turning to Italy, which was the principal seat of medical learning at the Renaissance, it is interesting to find that as far back as 1480, the physician Michel Savonarola, the grandfather of the ill-fated prophet of Florence, in his "Tractatus de Omnibus Italiæ Balneis" (1480), advocated the medical use of cold baths. He it was who is said, first of all, to have employed the "Doccia," or douche bath. During later centuries, in Italy as in England, there have been many extravagant "cures" by cold, followed by the inevitable reaction towards scepticism in the medical mind. The claims of the empirics have, unfortunately, everywhere tended to bring the use of waters into contempt and desuetude. In 1805 a notable work, "Della Natura delle Febbri e del Miglior Metodo di Curarle," by Giannini of Milan, inspired by the English Currie, marked the revival of this ancient mode of physical treatment. His rules for the use of cooling baths in fevers may still,

[1] Baruch, loc. cit.

after the lapse of more than a hundred years, be recalled with advantage. They may be summarized as follows:—

(1) In asthenia the immersion to be of very brief duration; it should never reach the point of cooling down, and in no case is to be prolonged after the first shiver.

(2) No such baths to be given during the stage of general arterial spasm.

(3) In sensitive persons warmth should be applied to the cardiac region during the bath.

Unfortunately the rational and prudent practice of Giannini was set aside in later years in favour of more heroic methods, and it is to the use or abuse of these heroic antithermal methods, as we shall presently see, that we must attribute the comparative disuse of baths in pyrexial diseases in our country.

As in France, so in Italy at the present time, hydrotherapy is extensively used by physicians. Many special stations are devoted to it, and there is a hydrotherapeutic section at most of the Italian spas. In the general hospitals it is also widely used. I am informed that the baths at the Spedale Santa Maria Nuova in Florence are particularly well appointed.

What has been said of the extension of this method in France, and Germany and Italy, applies to other European countries. Long ago in Belgium, Herman von der Heyden (1643) and the van Helmonts had lauded the use of cold water both in chronic and acute diseases, such as dysentery. In Holland the gradual cooling of the body in acute disease was advocated by van Honsebrouck, of Antwerp, in 1851. As regards Scandinavia and Russia, the hygienic, and probably the medical use of cold baths and affusions, following hot vapour baths, had been a popular and traditional practice for many generations. The application of cold after heat is one of the chief forms of hydrotherapy, and is found among all northern nations. William Penn, writing to Dr. Baynard in 1683, describes the use of cold after heat in cases of fever among the North American Indians.

In the United States, modern hydrotherapy was introduced soon after Currie's work was published, but—as in England—with excesses that brought about a speedy reaction. In recent years the translation of the *magnum opus* of Winternitz (1884), and the valuable work of American writers—Baruch, Kellogg, Pratt, Hinsdale and others, have brought about a revival of the practice upon rational lines. Dr. Baruch

now holds the chair of hydrotherapy in the University of Columbia, the first appointment of this kind in America. In a recent address[1] upon the "Lessons of Half a Century in Medicine," he recalls how, when in country practice, he became interested in the "tremendous possibilities of water as a remedial agent." He appeals to the past in order to show that the rise and fall of its recognition may almost be regarded as an index of the progress, or decadence, of the medical art. He holds with the older clinicians that, through the energy of which it is the medium, water operates by assisting a natural effort towards the *restitutio ad integrum* of the diseased tissues.

Well-appointed establishments have been founded in several cities in America, where baths and other water treatments are given under the observation and direction of trained physicians. The example of Boston, Massachusetts, may be cited.[2] In 1903 there was opened in that city a small institute for hydrotherapy, as a result of the labours of Dr. J. J. Putnam, Professor of Neurology at Harvard University. It contained sufficient appliances for the douche and for simple thermal applications, whether at plus or minus temperatures relative to the body. The whole was placed under complete medical control. More than a hundred medical men in the City of Boston availed themselves of this institution for their patients in the year 1908-09. The trained attendants in charge of the baths are permitted to visit invalids for necessary treatment in their own homes. Amongst the maladies treated have been cases of heart disease, chronic parenchymatous and interstitial nephritis, obesity, arterio-sclerosis, tuberculosis, as well as mental and cerebral and spinal affections. A similar institution was founded in Philadelphia in 1909. Dr. Baruch reports that in the Medical Department of the Riverside Baths at New York, more than 8,000 treatments were recently given in one year, and in 1910 patients were received at these baths from thirteen hospitals and other institutions.

Permit me to recapitulate. We have seen how modern hydrotherapy, receiving its first vigorous impulsion in England more than two centuries ago, became, in various forms, a popular movement in Europe; how in the Netherlands, France and Italy, and other countries, it was advocated and followed, in successive generations—sometimes

[1] See *Old Dominion Journ. of Med. and Surg.*, Richmond, U.S.A., July, 1910.

[2] *See* Pratt, loc. cit.

with, and sometimes without, due wisdom and restraint, and how extreme practices were followed by a reaction and scepticism, as extreme and as deplorable. Later we have found the pendulum of opinion swinging less violently under the guidance of more exact knowledge; and we have seen how, within the lifetime of men now living, a whole new science of hydrotherapy has been built up on a clinical and experimental basis.

I have purposely not touched upon the many forms of specialized, institutional, and systematic treatment, in which hydrotherapy in one shape or another is combined with dietetic, with psychical and other modes of treatment. Many and various in these days are the systems that abound in all countries, but I take it that systems of that kind, or of any kind, do not commend themselves to the enlightened medical mind. I have endeavoured to indicate the position which modern hydrotherapy, founded upon this new knowledge, has come to occupy in Europe and America. There can be no question as to the place it has taken in medical practice in the countries to which I have referred.

We are now confronted with statements put forward by men of acknowledged scientific reputation, who have devoted a lifetime to this study. They are sufficiently striking in their character — that by hydrotherapy we can influence both acute and chronic diseases, by modifying physiological and pathological processes, not alone in one organ or tissue, but throughout the body; that by it we can check the excessive reaction of acute disorders, in harmonious association with other treatment, dietetic, medicinal or otherwise. These are large statements which, if they cannot be disproved, may not be ignored. In part they are a revival and amplification of older doctrine, of the teachings of the seventeenth and eighteenth centuries. Some have often been affirmed, and never been denied in the history of medicine. What is new, and cannot fail to impress the candid mind, is the body of research that now lies behind them. It challenges examination and criticism at every point. Is it possible to disregard such a mass of evidence? The best answer to this question would be a complete experimental investigation upon English soil, into the properties and uses of water at different temperatures. We have as yet no institute of hydrology in this country, but I do not despair of such a research being some day accomplished.

It cannot, I think, be too clearly stated that the whole effect of baths

of every description is founded on the *power of reaction* possessed—sometimes in a very limited and partial degree—by the disordered tissues. Their power of response to applications of heat and cold, and the production of secondary consequences in the entire organism, are the whole key to hydrotherapy. The reaction in different individuals, and in different maladies, and even at different times in the same individual, and in the same malady, is a most variable quantity. It follows that in practice two things are above all necessary: in each case, first of all a determination, so far as may be, of the reactive power, which can usually only be done by cautious experimental methods; and secondly, a nice adaptation of the bath or application to this individual power. A dormant or defective reactive power can often be educated and strengthened to a remarkable extent, so that as treatment progresses stronger and stronger stimuli can be employed. All our external treatments make appeal to the same power that causes the newborn child or a person in syncope to open his eyes when water is sprinkled on the face. With reference to the limits of reaction, suffice it to say that there is in every case a point at which heat or cold ceases to act as a stimulant, that is, to evoke a healthy reaction, and beyond which effects of a quite different order are produced. The first order of effects is helpful, the second order injurious and depressive. The critical moment to which I refer is sometimes a point of temperature, but more often a point of time for the application of the same stimulus.

The crux of bath treatment consists in the ascertainment and observance of this law, and it is made more difficult because, as we have seen, the danger-point, following the reactive power, varies from time to time in the same individual, and in the same malady. Such difficulties in the application of hydrotherapy to chronic maladies can only be overcome by a close study of what may be called nervous and circulatory responses. The disappointments, the accidents and the errors of spa practice can usually be traced to an infraction of the laws of reaction.

The effects of temperature are daily invoked in many of the most familiar procedures in the treatment of painful affections, whether local or general. It is only necessary to mention the *plus* applications of heat and moisture, poultices, fomentations and local hot air or vapour baths for inflamed parts; or the *minus* applications of evaporating lotions and ice-bags. The association of areas of the bodily surface with deep-seated organs formed the basis of the external treatment of the older physcians.

Such an association was never doubted by them, although it was only in our time substantiated by the researches of Head. His work has, incidentally, firmly established the rational basis of hydrotherapy as applied to local and organic disease.

The *modus operandi* of baths appears to be mainly through the nervous end-organs in the skin, and by them upon the central nervous system. "We are in a position," says Winternitz, "by means of hydrotherapy to heighten innervation, to lower, abolish, or alter it; and this at the point of application, in the central organs, and by reflexion in the most varied motor and vasomotor tracts." He adds: "Thermal stimulations are therefore indicated when innervation requires to be strengthened, suspended, or altered."[1] Among this class of effects we ought to give the first place to the effect of baths upon the vasomotor centre. This is the key to the action of baths in fever. Romberg and Passler (quoted by Pratt) have shown that heart failure in acute disease is due to the paralysis of the vasomotor centre. The employment of baths in acute disease received a fresh impetus in the last century, when clinical thermometry revealed the type and degree of febrile disturbance, and especially when it was recognized that pyrexia was a reaction, often excessive and sometimes dangerous, which it should be the object of treatment to allay. When pyrexia further came to be regarded as a toxic condition from pathogenic invasion, with increased tissue change, due to a failure of the heat-regulating mechanism, the employment of cool temperatures with their sedative and stimulant action upon the nerve-centres received its justification. Antipyretic drugs, on the other hand, were themselves sometimes toxic. It was in view of these facts that Ernst Brand, of Stettin, in 1861, advocated the use of baths in typhoid fevers, and this treatment has now been employed with varying fortunes for fifty years.

It should be particularly noted that Brand followed the practice of Giannini and avoided *cold* baths in fevers. The difference between cool and cold to a warm-blooded animal is vital. Brand relied upon the stimulant effects of *subthermal* temperatures. He taught the use of baths always below the temperature of the skin, but never below 65° F. Baruch, amongst others, in recent years has consistently advocated this sound practice, and has rightly condemned the heroic and antithermic baths that have been so much in vogue, and are still unfortunately

[1] *See* "Hydrotherapeutics," in von Ziemssen's "Handbook of General Therapeutics," v, Lond., 1886.

employed. It is questionable whether this distinction is sufficiently appreciated even by medical men. Current English text-books contain directions for the use of much colder baths in fever, cooled by ice to 55° F., 50° F., and even to 45° F. Such temperatures are profoundly depressing, and can only be given in febrile cases with the gravest risk. In short, the utility of baths in acute and pyrexial diseases is proven, provided they are kept within legitimate limits of temperature. That dangers should arise from their improper use incidentally indicates how powerful is the weapon of cutaneous treatment.

I pass on to an appreciation of certain forms of hydrotherapy in chronic disease which have more particularly come under my own observation. Three distinct phases of treatment may be distinguished according to temperature in relation to the body: First, *plus* applications of heat; secondly, *plus* applications followed by *minus;* thirdly, *minus* applications.

(1) Among the *plus* applications I select one particular form—namely, *brief hyperthermal baths.* For many years I have used and valued these baths in a variety of chronic circulatory conditions. Chief among them is the state of habitual chilliness, defective peripheral circulation and catarrh, met with in many persons in our country (often young persons of gouty inheritance). The deficiency of animal heat appears to be conserved by a protective contraction of the peripheral vessels. The blood temperature is subnormal, that of the skin much more so. These are the subjects of internal congestion, intestinal irritability, and catarrh. The abnormal condition of the skin is matched by a corresponding disturbance of the mucous membranes. Such individuals are often temporarily cured in a hot climate. They are in the same manner relieved by a course of hyperthermal baths. The temperature of the bath may in many such cases be made to increase by daily increments of one degree, from 108° F. or 110° F., to 115° F., 118° F. or even 120° F. The duration of the bath is from one to one and a half or at most two and a half, minutes. The brief bath gives time for the primary stimulant operation of heat. The secondary and depressing effects that would follow a more prolonged bath are not developed. I make no claim to originality in this practice. I have taken it from the natural hyperthermal baths of Japan. The baths at the upper limits of temperature are somewhat painful to enter, but I have never seen an ill-effect in my own cases, and very often marked and permanent benefit. I have already referred to hyperthermal pediluvia, and to

their effect in altering the distribution of the blood. Local hyperthermal baths can be suitably employed in many cases of chronic traumatism, and in arthritis and neuritis, where pain and atrophic and degenerative changes are to be attributed to habitual deficiency of blood supply.

(2) *Plus* applications followed by *minus*. This is the procedure to be followed when it is desired to educate a defective reaction of the skin. It is the familiar sequence which we most of us follow in our morning bath, and affords personal opportunities for the study of reaction in its varying phases. *Plus* followed by *minus* applications form the underlying principle of many forms of hydrotherapy.[1] In practice considerable judgment is required in adjusting the amount and duration of the minus application. In my opinion, thermal baths (plus applications) are sometimes employed at all the spas, and even followed by further plus applications in the shape of blanket packs, in conditions of debility, to which the rule of plus and minus would have been more applicable. The result is that condition of "thermal debility," already described, which is a very unnecessary and undesirable sequela of bath treatment.

(3) *Minus* applications of heat. I select two or three particular methods to illustrate the wide range and therapeutic value of the effects that are produced by minus applications.

(*a*) *The cool or cold douche*, necessarily of brief duration. This procedure is comparable to the hyperthermal bath, inasmuch as it evokes the primary and stimulating results of thermal applications, but by brevity of application excludes those that are secondary and debilitating. I can add my testimony to that of others who claim that the cool douche has a valuable place in the treatment of anæmia, in neurasthenia, and other functional nervous disorders: and to this I would add many cases of degenerative arthritis. It must be remarked that in douches having an appreciable pressure the effects of mechanical excitation are added to those of temperature.

(*b*) *The Subthermal Douche Bath, without Pressure.*—I cite this mode of hydrotherapy as one that is but little appreciated in this country, although in my opinion of the greatest value. It is applicable to many of the more serious forms of cardiac disease, in which immersion baths are contra-indicated. The water flows over the patient, seated or reclining, without mechanical excitation, and with a temperature at or

[1] *See* Dr. Beni-Barde in *Bull. gén. de Thérap.*, Par., 1910, clx, pp. 33, 81.

about that of the skin. The gentlest massage may be combined with this application. The whole effect is to soothe and stimulate the heart's action, and by opening up the peripheral circulation to relieve stasis and unequal distribution of the blood. The good effects of the bath depend on the nice adjustment of temperature and duration, with suitable precautions against fatigue.

(*c*) *The Subthermal Immersion Bath.*—It would require a separate treatise to adequately set forth the *modus operandi* and clinical application of subthermal baths. I am accustomed to signify by the words "subthermal baths" those below blood-heat, and having a downward range of 20° F. or 25° F. The average skin temperature for each case (sometimes called the point of thermal indifference) may be called the critical point for the employment of these baths: and about this point as a centre every degree of temperature, plus or minus, has a definite therapeutic value. Permit me to offer a familiar illustration. There is an important class of baths, to which the name of Nauheim has been rather loosely applied, which is a muriated or effervescing muriated bath at a subthermal temperature. In these baths the general effects of temperature are combined with the specific effects of certain ingredients —which in fact vary widely in baths of this class. It is a subthermal bath of medicinal water. It is true, no doubt, that the action of contained gases and chlorides modifies and reinforces the minus thermal stimulation, but as with all other subthermal baths, it is really in the accurate regulation of temperature and duration, and their nice adjustment to the reaction of the patient, that the key to their efficacy lies.

Apart altogether from medicinal waters, subthermal baths have a wide clinical application. Of late years observers have been so much occupied with their remarkable influence upon the heart and circulation that their action upon other parts of the body has been somewhat overlooked. Like other outward applications, they operate by impressions upon the peripheral nervous system. It is not surprising, therefore, that a series of effects in the nerve-centres can be attributed to them. It may seem a rather comprehensive claim, but I have seen no reason to modify my own words, written in 1898: "Peripheral nervous excitation is diminished: a massive and equable tonic impression is produced. Such baths are therefore valuable in conditions of nervous erythism, and irritability as well as in debility and motor weakness, in peripheral and incipient and reflex paralyses. They promote absorption of inflammatory exudations and congestions, they allay disturbances of nutrition,

moderate senile change, and are therefore to be recommended in degenerative arthritis, in atonic gout and rheumatism, and in conditions of nervous exhaustion, and of convalescence." [1] Prolonged sedative baths of this nature are sometimes of much value in insomnia, and in some mental affections. In subthermal baths prolonged for many hours or days—as at Leukerbad, or at some of the subthermal spas in Japan—the exchange of a variable aërial medium for a watery medium at a fixed and equable point of temperature, is a method of treatment with fruitful possibilities, and worthy of careful study.

It is remarkable that whilst so strong a movement has taken place in nearly every other civilized country in favour of a mode of therapeutics resting on the best foundations of clinical experience and experimental research, in England it is still comparatively unknown to us. It would almost seem that this country has been in two successive centuries so thoroughly inoculated with the empirical virus that it remains immune to the invasion of legitimate science. It is true that here and there certain methods of hydrotherapy are studied and applied by practitioners, particularly at the mineral spas, but by the general body of medical men they are for the most part ignored or employed for their patients in the least favourable manner, without the necessary exactitude, and under the direction of persons who have received no medical instruction nor technical training. Nor is it taught at any of our schools. British medicine cannot compare in these respects at present with the practice of Germany, Austria, Italy, America, and France.

But, happily in medicine as in other departments of knowledge, one nation carries on or completes what another has begun. Professor Winternitz has himself acknowledged that "the zeal of an Englishman first caused attention to be drawn to hydrotherapy, and secured a large domain for it," and in another place: "In England, where Bacon advanced the principles of induction, and where medicine first shook off its trammels of speculation and turned to simple observation, the ground for scientific hydrotherapeutics was better prepared than anywhere in Europe."

For many years I have been impressed by the need for suitable institutes of hydrotherapy in this country. They might well be modelled on the pattern of the Baths at Boston, open to the use of all medical practitioners, under skilled professional control, and served by

[1] "Encyclopædia Medica," Edin., 1889 (article "Balneology"), i, p. 435.

attendants trained in the technique and in the use of instruments of precision. From such institutions the services of the attendants would be available outside for the treatment of acute disease. Within its walls many physicians who have to deal with chronic disorders would find new and unexpected possibilities. And the remedies would be applied as they should be applied, under their own care and observation. Moreover, the great interest of conducting a course of physical treatment, with the necessary skilled assistance, would stimulate many medical men to independent research—and would in time confer educational value upon an institute of this kind. What I have said applies to most of our large towns, but especially to London.

In the western division of Glasgow there has lately been opened an establishment of medical baths, which are given by skilled attendants and under medical prescription. There is also in London the new Alexandra Institute of Baths, which is conducted on similar lines, but I am not aware of any others in this country that are at all comparable to the hydrotherapeutic institutes existing in the other countries to which I have referred.

In many of our hospitals baths are employed, but not—so far as my information goes—to a considerable extent, either for acute or chronic maladies. We have witnessed the zeal with which in late years photo-theraphy, electrotherapy, radiotherapy, and treatment by massage and movements have been introduced into the hospitals and into general practice. I cast no doubt upon new treatments by entering this plea for a much older one. I am informed that at Guy's Hospital during the last year, 43,000 treatments were given in the new department of electro- and actino-therapy. How many of the patients so treated would have derived equal benefit from applications of hydrotherapy, given with as much skill and precision?

It is because during recent years we have called in aid so many physical agencies in medical treatment, both for the prevention and cure of disease, that a new hopefulness is abroad. We no longer despair of tuberculosis or even of cancer. We realize that there is a vast field open to us for increasing the resistance of the tissues to pathogenic invasion, and that this is, *par excellence*, the field of physical therapy.

In conclusion, we must acknowledge that there is a mass of evidence that diseased conditions can be controlled by applications of temperature in a watery medium. In our own lifetime there has been gathered together in reference to this subject as goodly a body of ascertained facts as can be found in any department of medicine.

But it may be said, Shall we touch what has been, or may be, in the hands of unworthy professors? Surely the extravagant or irrational use of a remedy should not prevent us from employing it wisely. Is it possible that we, acknowledging the validity of the evidence, can be content not to take into our own use and possession a power which may be of essential value—in short, that we are willing to alienate a branch of therapeutics and yield up to the control of others what belongs to ourselves in trust?

Again it may be said by some—perhaps by the practitioner at the mineral spa, "Why introduce hydrotherapy to the Section of Balneology and Climatology? It is separate in practice and in name. It is no part of our province. How are we concerned with it?" My answer to that is, that according to the evidence that I have endeavoured to adduce, the spa physician is above all men deeply concerned with it. The study of the laws of hydrotherapy, as we have received it in our generation, is an indispensable preliminary to his work. They form the very groundwork of his practice. Water cannot be separated from Waters. I conceive that the property and action of water as a vehicle of energy forms the first part of the science of medical hydrology.

The CHAIRMAN (Sir Dyce Duckworth) commended the arrangement of Dr. Fortescue Fox's lecture, and thought that he had well shown how the scientific study of hydrology had suffered in this country, owing to surrender of the subject into unworthy hands, after the time of Currie early in the nineteenth century. He approved the use of the term *hydrology* in preference to that of balneology. The references to the action of water of varying temperature reminded him of a conversation he had many years ago in the Alps with Sir William Gull, who had noted the remarkable effects of the action of air on the surface of the body, and urged the study of what he called "surface therapeutics." Dr. Head had developed the subject most carefully. The effects of water at different temperatures on painful parts were very remarkable—for example, the beneficial results obtainable from *hot* douching of the head in the severe headaches of typhus fever and influenza, conditions which were unaffected for good by *cold* douching. Again, the noteworthy relief in painful conjunctivitis afforded by *hot* douching. While allowing that we were behind our colleagues on the Continent in respect of the careful study of hydrology, he believed that we were now making progress, and that careful attention was now paid to the matter in most of our British spas. The establishment of a Balneological Section in this Society of Medicine was, in itself, a great advance, and calculated to further more exact study of the subject in this country. We had recovered the art of using hot poultices,

which had fallen into desuetude owing to some absurd ideas of their encouraging germ propagation, and only those who had clinical and personal knowledge of the relief afforded by them could properly realize their value in relieving pain in any part of the body. Each advance in our art appeared to have the effect of displacing the older and well-approved measures which our wise predecessors in medicine had found helpful in their practice. New knowledge was not always true knowledge, and there was no sense or reason in disregarding what was found to be of ready and practical use. True progress was generally slow.

# Balneological and Climatological Section.

May 19, 1911.

Dr. THEODORE WILLIAMS, M.V.O., in the Chair.

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THE SAMUEL HYDE MEMORIAL LECTURES.

## Outlines of Medical Hydrology,

*The Science of Water and of Waters, with a Plea for its Practice and Teaching in Britain.*

By R. FORTESCUE FOX, M.D.

### LECTURE III.—THE MEDICINAL SPRING: THE TEACHING OF MEDICAL HYDROLOGY.

IN the last lecture I described the first part of medical hydrology, which has to do with the medical use of water as a medium of energy. It remains to attempt some survey of the second part of this science—that which has to do with the properties and uses of the medicinal spring. In England, we have as yet no convenient name for this subject. Recent French writers, after Landouzy, have used the new word "créno-thérapie" (from "Krene," a source). Our German colleagues, with their happy power of word finding, have called it "Heilquellenlehre" (health-spring-lore), whilst in Italy the word "idropinoterapia" has been sometimes applied to the internal use of waters, and "balneoterapia" to their external use.

We have to regard facts. From immemorial time the use of the medicinal spring has stood apart as a separate definite method of treatment. Waters of this description exist in every country, sometimes in great numbers and almost inconceivable variety, affording scope for an equal variety of application, and in every country we find

evidence that they have been approved and employed from the remotest times, not only by popular election but by medical authority. It is, I think, evident that this health-spring-lore must be regarded as a definite self-contained department of knowledge. Those who have at all examined the subject will know how extensive are its legitimate boundaries; but I venture to say that it would not be according to facts if we allowed any confusion to exist in our minds or in our nomenclature between the medicinal spring and water *qua* water. We have already dealt with water under "hydrotherapy." There remains for consideration the other great division of hydrology—the medicinal spring.

We cannot wisely ignore the fact that it on the whole has enjoyed at all times a larger measure of the faith and confidence of mankind than any other curative method. Wisdom lies not in ignoring facts, but in endeavouring to account for them. I had, for more than twenty years, the privilege of practising in the vicinity of a British medicinal water. It was then customary every year for many poor persons to travel to these waters long distances, and at a great sacrifice, and the unwavering confidence placed in their efficacy, which the country people had discovered about one hundred years before, made a great impression upon me. We may rightly have our own views as to the cause or combination of causes that are at work in the beneficial action exerted upon so many invalids, but no tenable explanation can exclude the medicinal spring.

Nor can we truthfully say that this faith is confined to the poorer classes, or was especially characteristic of bygone times. Experience shows that the growth of civilization, and the increase of knowledge, in nowise lessens the yearly recourse of all classes to waters. We know how great a migration to the Spas takes place in England. Italy is not a wealthy country, but I am informed that from 40,000 to 80,000 invalids annually frequent the four chief Italian spas. We cannot, therefore, suppose that a custom having its roots in antiquity, and showing in our time increasing vigour with the growth of exact knowledge, is likely to decline. It has the elements of permanence in its nature. We must, as I say, accept the facts and interpret them as best we may.

The older and primitive view of waters, as of medicinal agents generally, attributed their virtue to miraculous powers. To the vivid and childlike mind of our progenitors there seemed to be something of life itself in the spring. Always moving, renewed every moment, no wonder that it was counted among the living things of Nature, that

fountains and rivers were held to be haunted, like the trees and animals and man himself, by spiritual beings. In respect to the mystic power of wells and springs, that early view has been curiously long-lived, and may still be met with, under religious sanctions, here and there. We know of course that what has been called the "sprite of the springs" has long been laid. I have already referred to the summary rejection of this doctrine by Floyer two hundred years ago. No medical writer since his time has given it quarter. Science can have no traffic with mystic or unknown powers. It is, however, possible that the process of negation may go too far. Denials often outrun reason. We are entitled, nay we are bound, to reject the pleasant hypothesis of our ancestors, but we cannot deal so summarily with the facts for which it endeavoured to account. The interpretation is destroyed, but the data remain. It is, indeed, because of the increase of data that we discard old interpretations. And here we are met by a curious fact, common enough in these days in many categories of knowledge, and one that may well give pause to the reflective mind. It is ever thus. With infinite pains we eliminate the miraculous from any subject of study in which it has hitherto had a place. We dismiss from our mind, and very rightly, all ideas of exceptional power, and sit down quietly to examine the true nature of things. We go on step by step in our reasonable analysis; we discover many links of causation and effect; then, all at once, whatever be the direction of our research, we find ourselves at an impenetrable frontier, where the mystery from which we had fled finally bars our advance. Surely it is a sorry fate for the thinker to have escaped from the sense of miracle and of the unknown in one or two or a few places, only to find it confronting him everywhere. We are discovering that our science everywhere is rounded by it.

So in regard to the medicinal spring, we have found that it does not depart in any way from the ordinary laws of Nature; but we have also found that its operation, like that of any other natural agency, can be followed and scrutinized to a certain point, beyond which lies the ultimate analysis which baffles us.

Those who destroy old hypotheses are, *ipso facto*, bound to supply new ones, to save us from the chaos of unclassified data. The hypothesis of exceptional powers in the spring was fitted to the old doctrine of possession in disease. When later on disease was interpreted according to a humoral pathology, the humoral theory was applied to the medicinal spring. According to this theory, the action of waters was a very simple one—namely, the elimination of peccant humours. The

growth of chemistry, and the consequent investigation into the chemical nature of the various springs, upset in its turn the humoral theory by establishing the presence of a varied and more or less complicated chemical constitution for most of the medicinal springs. Hence arose the reasonable doctrine that waters acted in virtue solely of their chemical ingredients, as revealed by the ordinary methods of analysis. According to this hypothesis the action of a medicinal spring should be identical with that of a solution of the saline and other ingredients, corresponding in amount with the results of this analysis. This simple and attractive explanation, which attributed every property of waters to their ascertained chemical constitution, was presently found in its turn not to cover all the facts. For example, it was shown that some waters, which were called "indifferent" from a chemical point of view, produced effects out of all proportion to the quantity or quality of their known ingredients. Again, it was found that an artificial water, however similar to the natural spring in chemical constitution, did not produce the same effects. In other words, that it is impossible to reproduce a medicinal spring. But it may be said, with some reason, that the same effects are not produced because the true chemical constitution is not accurately known or reproduced. If that be so, then it is clear that the chemistry of waters is much more intricate than our analyses suggest, and that in point of fact the analyses are both incomplete and misleading. The present position may be stated thus: What we know of the chemical constitution of many medicinal springs does not explain their action. It is, however, probable that the action could be explained if we knew the arrangement and combination of the various elements, the form in which they are presented for absorption in the tissues, and the power which one may possess in modifying the proper effect of another. What the French call the hydro-mineral action would therefore appear to be due rather to the constitution and grouping and *dissociation* of the molecular elements of the water than to its total mineralization. Dr. Felix Garrigou, of Toulouse, teaches that substances, whilst in isolation, may be sometimes inert, but that they become active when combined with other and different bodies. For example, iron is often therapeutically active when given in a ferruginous water of complex constitution. In the same manner alkaline and sulphurous waters seem to promote the activity of mercury in syphilis. But Garrigou also holds that in many thermal waters organic substances hold metallic matter in solution. According to his hypothesis, which is accepted by many French writers, many metals in these waters

are present in the colloidal state, and are therefore insusceptible to the ordinary methods of analysis. In this condition certain metals exert a bactericidal action, and probably other intimate effects on the tissues that are not comparable to their action in bulk. Moreover, he attributes the loss of activity of such waters, when preserved for any length of time, to the destruction of the organic matter and the deposition of the metallic elements. Colloidal arsenic has been discovered by Iscovesco in arsenical waters, and various colloidal matters have long been known in sulphurous waters. We know that colloidal metallic solutions have a catalytic action. According to the French school, similar traces of metals in medicinal waters may be regarded as ferments. They are capable, says Albert Robin, of physiological action, out of proportion to their quantity. They may, therefore, operate in doses hitherto considered as inert. They may in the tissues modify the chemical action associated with morbid states, and may, he thinks, take an important place in the therapeutics of the future.[1] However this may be, there are certain springs for which it is difficult to account by any appeal to their chemical constitutions.

There is yet another view of medicinal waters which has always had some advocates, and which has been again recently advanced. This may be called the hydrotherapeutic theory. According to this view, to which I have referred in a previous lecture, it is the water only which counts and the particular qualities of the spring are negligible. We may freely grant its full value to the watery element and to all its proper actions, which belong to the domain of hydrotherapy. Let us put this theory to the test. A bath of the natural water at Buxton at a certain temperature produces one effect; a similar bath at Droitwich a second, and one at Strathpeffer a third. Daily experience, checked by experimental observation, establishes the fact that these and such like exhibit differentia which are superadded to something they have in common. The same remark applies to waters taken internally, for example, the waters of Bath, Harrogate, Llandrindod. This doctrine, which is founded on a denial of particular properties, therefore falls to the ground. It is evident that no simple theory is sufficient to explain the action of medicinal springs. Their composition is still in part unknown to us; chemical data do not reveal to us the real grouping of the elements.

It has been generally supposed that all medicinal waters, like other springs, are derived originally by condensation from the atmosphere;

[1] "Clinique hydrologique," Par., 1909, p. 45.

that they fall as rain over a more or less wide collecting area; that they are absorbed by the soil or porous strata, or sink by gravitation into the many faults or fissures of the more solid rocks; that they eventually accumulate upon an impermeable bed, declining always to the lower parts and lying in depressions or pockets; and that hence they gradually rise in level, and eventually force their way to the surface through fissures or erosions of the overlying beds. With reference to naturally warm or hot springs it has also been held that the same sequence has taken place, only at a greater depth, and that the temperature which they present has been imparted to the circulating water by the heat of the earth's crust, which is known to increase one degree Centigrade, more or less, for every hundred feet of depth.

It has, moreover, often been pointed out that many medicinal springs exhibit remarkable fluctuations in yield, as well as in their temperature and composition, according to meteorological conditions, and from one season to another. On the other hand, there is another large class of springs, usually warm or hot, that show little or no variation in temperature, composition or yield, and are entirely uninfluenced by rainfall or seasons. These latter waters are also distinguished by a definite type of chemical composition. Many geologists have long been of opinion that "thermal" waters of this class were connected with volcanic action, and therefore had a deep origin. What is sometimes called the "endogenous theory" of the origin of mineral springs was first advanced by Élie de Beaumont in 1847. Armand Gautier[1] has lately promulgated the doctrine that there is an essential difference in the origin of the two classes of waters referred to above. The first class, which he terms "Waters of Infiltration," he believes to be entirely of superficial origin. The second are, in his view, "Primitive or Virgin Waters." He shows that they are not only connected with volcanic action, but contain the elements commonly found in volcanic matter and in the gaseous emanations of volcanoes (fumeroles). The elements found in these thermal waters and in those of deep origin include the haloids, arsenic, phosphorus, silica and sulphide and carbonate of sodium, and often large quantities of nitrogen gas, with argon and helium. The mineralization of these deep sources is small in comparison with waters of superficial origin, which derive their constituents from solution of the rocky beds through which they percolate. Gautier's researches show that igneous rocks, such as granite or porphyry, after being pounded

[1] *Bull. Acad. de Méd.*, 1906, 3me sér., lv, p. 337.

and dried *in vacuo* at 200° C., when further heated to redness, yield a considerable quantity of " water of constitution." According to him, the " virgin water " of many mineral springs takes its origin from the disintegration of these rocks, at high temperatures and at a profound depth, by the combination of the nascent hydrogen with oxygen in the overlying strata. This is analogous to the formation of *new water* in volcanoes. If these views are correct, it would not be irrational to suppose that water continually formed in this manner *de novo* under unknown conditions of pressure and temperature at a great depth, might possess special properties as a solvent or in other ways. " The emergence of thermal waters upon the surface of the earth is a phenomenon of the same order," says Guéniot, " as an eruption of lava, cinders and gas, and is in reality an attenuated volcanic eruption." [1]

In all medicinal springs no doubt much importance attaches to the form in which the ingredients are presented in a more or less dilute solution. It would even seem that very dilute waters are sometimes the most active. Jacobi [2] points out that free motility of the particles of matter is essential to active metabolic process. Water has the power of fluidifying, or rendering motile, the majority of solids. This fluidification, as in the case of vaporization, is associated with a loosening of the mechanical and chemical structure of the particles. This process as applied to salts is described as *dissociation*. Water further has the property of taking up molecules produced in this manner between its own molecules, rendering them fluid and motile, dissolving them, and increasing their chemical activity. Moreover, these separated particles, or *ions*, whether bases or acids, carry a negative or positive electric charge, and do not exhibit the usual properties of the free elements. In a solution of chloride of sodium, for instance, completely ionized, neither the kathion (sodium) nor the anion (chlorine) exhibit the properties of these elements in the free state. It is noteworthy that the degree of ionization is in proportion to the dilution of the solution. In many medicinal waters it is supposed that the saline constituents are in a state of complete ionization.

We here touch upon interesting and undetermined questions: as to the range of active dosage, and as to the most favourable form for absorption and assimilation. Recent knowledge does not appear to warrant dogmatic statements with reference to the inactivity of minute

[1] " Resumé des travaux de l'Académie pendant l'année, 1906," *Bull. Acad. de Méd.*, Par., 1907, 3me sér., lvii, p. 37.

[2] " Deutsches Bäderbuch," Leipz., 1907.

doses when presented in an assimilable form. In many cases it seems impossible to doubt the effect of minimal doses. In truth the problem of treatment by many drugs is now no longer a question of "how much," but how to get the drug into the tissues. It is my conviction that this problem is often solved by medical waters.

The osmotic pressure or tonicity of medicinal waters is another property which has recently received careful study, and will have an important bearing upon their therapeutic use in future years. It has been ascertained that a considerable number of natural waters are nearly isotonic with blood-serum. I believe that the hypodermic administration of waters was first used by Dr. Thermes at Argelès-Gazost in 1885.[1] He found that small quantities so given were equivalent in their effects to larger quantities given *per os*. I am informed by Dr. Ferreyrolles that the arsenical waters of La Bourboule may sometimes be given in this way with much advantage; and I am prepared to believe, although without personal experience, that many chronic tuberculous and pre-tuberculous conditions might well be treated in this manner by diluted sea-water and other natural salt waters. Sea-water is regarded as a mixture of "primitive" water with "water of infiltration."

Since the discovery of radium considerable attention has been attracted to the radio-activity of many medicinal waters. This singular property has been found in the gases of many thermal sources, such as Gastein, Plombières, and Buxton; also at many spas, in the atmosphere in the bath-rooms, and in the vicinity of the springs. It is premature as yet to state definitely the effects of this property, but it is worthy of remark that it may be found in considerable strength in many waters of low mineralization—"paradoxical waters"—which experience has shown to possess an activity out of all proportion to their ascertained chemical or physical properties.

A reference to the gases contained in waters should not be omitted from this brief general survey. Relatively large quantities of nitrogen and its congeners, argon and helium, are found in many thermal and radio-active sources, as at Buxton. The somewhat peculiar and hitherto unexplained effects of these waters when used in the form of baths may probably be due to their gaseous content, derived in all probability from profound depths in the earth's crust—and deserve, in my opinion, further investigation. Carbonic acid gas, when present, as it often is,

[1] *See* Garrigou, "Enseignement de l'hydrologie," 1903 (leçon d'ouverture).

in considerable quantities, powerfully modifies the effects of medicinal waters—whether in their internal or external use. The hyperæmia which it produces in the mucous membranes favours the absorption both of water and dissolved particles. For this reason it increases the diuretic effect of medicinal waters (Quincke). The effect of carbonic acid gas in the bath is of much practical importance. It exerts a local action on the nerve-endings and blood-vessels, causing a tingling, prickly sensation and increased feeling of warmth. The peripheral circulation and perspiration are increased. Subthermal baths containing this gas therefore give a greater impression of heat than an ordinary bath at the same temperature. Since the indifferent point of a carbonic acid bath is lower than that of an ordinary bath, a patient in a carbonic acid bath of, say, 92° F., is acted upon both by the cold of the water and the warmth of the gas. This alternative action is a powerful physical stimulus.[1] The opening up of the cutaneous circulation, which is often evidenced by increased colour of the skin, relieves deep-seated congestion and vascular tension, and these baths are therefore called "decongestive" by the French. For the same reason there is an increased loss of heat in baths of this kind. A propos of cutaneous stimulation in medicinal baths, I may here mention the brine, peat, mud and the various acid baths—which powerfully affect the peripheral circulation and nerve-endings, apart from the temperature at which they are given.

Having in a general way discussed the properties of waters and baths, it remains to consider their clinical application.

The methods of hydrotherapy, as we have seen, are applicable alike to acute and chronic illness. The treatment that belongs to the medicinal spring, the *Crenotherapy* of the French, or in common parlance "Spa treatment," is a branch of medicine which concerns itself only with chronic disorders and morbid tendencies. The treatment resembles the malady in being gradual, and acts by absorption and by reiterated impressions. It is remarkable to what an extent the use of waters internally, and that of baths, reinforce one another, for both procedures tend to promote the same general effects. Waters act through the mucous membranes, and baths through the skin. This double appeal was well understood by the early physcians. It was their aim, as we have seen, to rid the body of "morbid humours" and "peccant matters," and waters and baths were called in aid for their purgative,

[1] *See* Frankenhäuser, "Ueber die Entwicklung der Balneologie in den letzten Jahrzehnten," *Berl. klin. Wochenschr.*, 1908, xlv, p. 454.

diuretic and diaphoretic effects. Dietetic errors, ingestion that overtaxed the power of elimination, deficiency of imbibed fluids and of bodily exercise, produced then, as now, a variety of disorders, for which a course of waters, with appropriate diet and exercise, sometimes repeated year after year, formed the best corrective treatment. For conditions of this kind the principles of spa treatment are simple—*dilution* and *elimination*. The extraordinary solvent powers of many medicinal springs must not be overlooked from this point of view. Probably their remarkable freedom from saline matter is in this case advantageous.

Although this is far from being the whole rationale of spa treatment, it cannot be denied that increased elimination from the bowel, the kidneys and the skin, is an essential part of it. It is founded upon a humoral doctrine, which still holds the field. Waters and baths also operate directly upon the circulation of the blood, and upon the nerve-centres, and so indirectly upon the general nutrition.

We here return to a cardinal fact in hydrological medicine, which has been several times touched upon in these lectures, namely, the power of reaction to stimuli inherent in living tissues. In all chronic disorders of nutrition, whether inherited (diathetic) or acquired, we have to suppose that the reaction of the tissues has become inefficient or perverted. Toxic matters are formed and vicious circles established depending upon this defective reaction. Acute disease should have a favourable course, with prompt and effectual reaction, indicated by pyrexia and often some form of critical disturbance. In chronic disease reaction is imperfect, smouldering and ineffectual. It is more particularly to these more or less general chronic tissue disorders, which precede local and acute disease, and furnish the *soil* for specific invasions, that spa treatment has its application. It is possible, by the use of waters and baths, to restore the healthy reaction of affected tissues. It is a familiar observation that in virtue of their selective or specific action, particular toxins may cause a local neuritis, arsenic set up or remove cutaneous changes, and iodine resolve deposits in connective tissues. I claim for particular medicinal waters that by a similar selective action in the tissues they operate at the seat of disturbance. The curative process in chronic disease, however produced, cannot be otherwise than an alteration in the intimate nutrition of the part. Treatment of this kind has therefore long ago received the name of *alterative*. What are the intimate chemical or physical changes that take place in the restoration of a tissue habitually disordered is at present unknown. We do, however, frequently observe a striking and suggestive fact. I refer to a

certain *increase of reaction*, which converts the chronic process into one of a more acute character. I have endeavoured elsewhere[1] to show that an increased or *intensive* action belongs to the natural process of cure, and that its production is one of the chief principles in the treatment of chronic disease. This principle is abundantly illustrated in spa treatment. What may be called the *intensive method* is at the foundation of hydrological medicine. It is a familiar observation and indeed a frequent complaint at many of the spas that the waters or baths increase or "bring out" the symptoms in many kinds of disorders. In gout or rheumatism certain joints or tissues, previously quiescent, become painful, tender, or swollen, under treatment. Were this not so, the treatment would often be fruitless. It is the duty of the spa practitioner to watch closely these changes of phase, which are salutary and necessary up to a certain point. In order to moderate the new reaction it is often well to combine with intensive and stimulant methods those of a more sedative character. It is precisely because of the intensive action both of waters internally, and of bath treatment, that their application in the field of chronic disease is so wide. The particular deviation from normal nutrition may be widespread, or more or less limited to a single tissue or organ—for example the mucous membranes, the connective tissues, the lymphatic tissues, or the skin. The disturbance may take the form of a lifelong vulnerability in one or other of these parts, or it may especially belong to the period of growth or of decay. It is clear that our treatment of these tissue disorders should not only have power to remove or allay the disturbance that has resulted in later life, but by timely interference in early life prevent the development of a morbid inheritance by promoting healthy reaction in the tissues.

Let me remind you that our views of chronic affections have undergone a considerable modification during the century that is past. We have learned something of the activity of the cell, of its nutrition and metabolism. We know something about its degenerations and deviations of function. We have acquired numerous facts with reference to the invasion of micro-organisms, and we know that the condition precedent to this invasion is a weakened resistance in the tissues. We have found that a large number of chronic disorders are due to gradual and chronic invasions, or are the results of bygone invasions of a more acute character. We have much knowledge of microbial toxins, variously produced, frequently inducing degenerative changes of a chronic

[1] "Some Principles in the Treatment of Chronic Disease" (The Hunterian Society's Oration), *Lancet*, 1910, i, p. 1115.

character. I need only refer to gonococcal disease, influenza, catarrh, tuberculosis and syphilis. We are also gaining insight into liabilities and immunities. We find conditions of the soil peculiar to families or individuals which, far more than the ubiquitous micro-organism, determine the development of disease. We have learned that it is possible to modify the soil in a favourable manner so that microbial invasion is no longer possible; or if it has already occurred, that it can be arrested or overcome. To these ascertained elements in many chronic diseases we must now add conditions of the nerve-centres of an irritative or asthenic kind, and certain circulatory disorders, evidenced by morbid blood-pressures and unequal distribution of the blood.

The conclusion of the matter is that we have a mass of evidence as to actual conditions in chronic disease which indicates to the practical physician the lines upon which treatment can be effectually applied. Therefore the aim of his treatment must be above all to restore the normal resistance to invasion, to promote the elimination of toxins and to allay nervous irritation and disturbances of circulation.

Let me also point out that we have a corresponding mass of modern evidence, as I have indicated in these lectures, showing the effects of baths and waters upon nutrition, metabolism and elimination, and upon nervous and circulatory disorders. From two sides, therefore, new light has been focused upon medical hydrology. Waters and baths have always been sought for a great variety of chronic disorders. But what has seemed to my own mind impressive is the fact that only in our time has it been established—on the one hand, that chronic disease depends upon intimate tissue disorders with consecutive circulatory and nervous disturbance, and on the other that waters and baths, by their eliminative, sedative, stimulant and intensive actions, provide for this class of disorders an adequate and fitting treatment. Our new knowledge of tissue changes on the one part, and of the operation of physical agencies, and especially of waters and baths, on the other, has brought these things into so close a juxtaposition as must eventuate in nothing less than a revolution in the accepted treatment of chronic maladies.

It will surely be admitted that hydrotherapy and the medicinal spring or, as we may call the whole subject, medical hydrology, form a constituent member of the medical sciences, having close relations with a wide field of practice. Societies and associations, such as our Section of the Royal Society of Medicine, have been in operation for many years, to promote its study and increase its usefulness, and it has a daily extending literature in many languages. Only one step remains, to provide for its adequate recognition by the teaching bodies in the

profession, in order that the practitioners of the future may be prepared better than we have been by adequate knowledge, more particularly for their responsibilities in connexion with the treatment of chronic disease. This is by no means the first time that the question has been raised in this country. Our Honorary President, Sir Hermann Weber, himself advocated it in former years. You will, Sir, recall that a committee was appointed, in 1897, by this Society, with yourself as president, in order to draw up a memorandum setting forth the necessity of teaching "medical balneology, climatology, and geography" in the several schools of medicine in Great Britain, Ireland, and the Colonies, and inviting the co-operation of the different schools of medicine and examining boards. The other members of that committee were the late Dr. Havell and Dr. Sunderland, and myself. We drew up a memorandum setting forth that these branches of science were intimately connected with preventive and curative medicine, and that it was expedient in the interests of the public health and for the advantage of medical science that they should be recognized by the medical examination boards as essential parts of a student's medical education at the several schools of medicine in the British Empire. We also accompanied the memorandum by a proposed syllabus in which the general principles of hydrotherapeutics were included by us under the heading "balneology." Fourteen years have passed, and I am not aware that any attempt has been made to set up any systematic instruction in these subjects in our country; although no doubt some teachers of general medicine and pharmacology include in their lectures an occasional reference to waters and baths.

I have thought it well to make some inquiries in order to ascertain what instruction in medical hydrology is at present being given in the medical faculties of other countries; and will briefly summarize the results. In France, a country very rich in medicinal springs, there is at present but one chair of hydrology, that of the medical faculty of Toulouse, which has been occupied since its foundation in 1891 by the eloquent and accomplished Professor Felix Garrigou. Dr. Garrigou has in the course of fifty years conducted many investigations upon the waters of the Pyrenees. He has fitted up at his own charge a laboratory for experimental work and demonstrations for the students of the course. The latter extends over three years, devoted respectively to "hydrology," "hydrochemistry," and "thermal therapeutics." Outside Toulouse there is in France no official instruction in hydrology, but occasional lectures have been given in Paris for many years past, and "conferences" or courses in hydrology are held from time to time by the *agrégés* professors. Yet Dr. Albert Robin, in a recent article, laments that the five

hundred or six hundred doctors who annually go forth from the faculty of Paris are, in spite of this occasional teaching, ignorant of the properties and indications of the French mineral waters and climatic stations.[1] A proposal is now under discussion for founding a chair of hydrology and climatology in Paris, and also, if possible, an *Institute of Hydrology* for purposes of teaching and research, equipped with suitable laboratories. In regard to hydrotherapy, courses of lectures are frequently given in connexion with the French universities, although there are no chairs or regular lecturers. Theoretical and practical instruction may also be obtained at the larger establishments of hydrotherapy.

In Germany both hydrotherapy and balneotherapy are more systematically studied, practised and taught than in any other country. Among the twenty German universities the following, and perhaps others, now provide special courses of lectures in these subjects: Berlin, Bonn, Breslau, Göttingen, Greifswald, Halle, Heidelberg, Königsberg, Jena and Rostock. In Berlin the formal addition of hydrotherapy to the clinical curriculum, and the consequent foundation of a chair, were the results of Parliamentary agitation. Inquiries were instituted as to the provision for teaching, and a report drawn up by Professor Kussmaul in 1896. In graphic words he pictures, like Robin in France, the results of the prevalent ignorance of these subjects. "Of hydrotherapy," he says, "the young physician knows almost nothing when he leaves the university. Unfortunately he may sooner or later encounter discomfiture when an uneducated 'water doctor' steps in and cures the patient after he has failed. Deeply chagrined and shaken in his confidence in scientific therapeutics, he may pass into the camp of crude empiricism."[2] Dr. A. Vogl, Medical Director of the Bavarian Army, emphasizes the same difficulty, declaring that when hydrotherapy is taught in its entirety by lectures and demonstrations, and as an obligatory branch of study, it will become the property of all physicians, and not practised as a special and distinct method. Dr. Brieger, Extraordinary Professor of External Medicine and Hydrotherapy at the University of Berlin, as well as the medical chief of the great institute at the Charité, have since 1904 given systematic lectures and practical demonstrations. These are well attended both by students and physicians, not only from Germany, but from other countries, such as Switzerland, Austria, Russia and Japan. Dr. Frankenhäuser also lectures in balne-

[1] *Le Temps*, February 1, 1911.

[2] *See* S. Baruch, "Instruction in Hydrotherapy," *Med. Record*, New York, 1908, lxxiii, p. 92.

ology at Berlin, and Dr. Paul Jacob on physical therapy at von Leyden's medical clinic. There are also lectures at Virchow's Hospital.

At the University of Würzburg hydrotherapy and balneotherapy were first taught in 1898 by Dr. Gatschenburger, lately physician at Kissingen. At present Professor Geigel delivers in the summer sessions a free public weekly lecture on physical therapy, and in winter one on balneology. Professor Kionka lectures on balneology at Jena, and Professor Windscheid on hydrotherapy at Leipzig. The attention that is being devoted everywhere in Germany to the methods of physical therapy is evidenced by such works as Goldscheider and Jacobs' "Handbuch der physikalischen Therapie," to which many university teachers of distinction are contributors.[1] In the year 1908 about 100 courses of lectures on physical therapeutics were delivered in Germany. There is at present a proposal to found a large Institute of Balneology, with the necessary laboratories, at Frankfort-on-Main.

The first systematic lectures upon balneology and climatology in Europe of which I can find a record were those commenced at Vienna in 1854 by Dr. Josef Seegen. Dr. Ludwig Wick, Privat-Docent to the University, now conducts the course, giving eight lectures in every winter session—but without practical demonstrations, for which there are as yet no facilities. It is at the Kaltenleutgehen, near Vienna, that Dr. Winternitz has carried on for so many years his lectures and demonstrations on hydrotherapy. Not only have many physicians availed themselves of them, but nurses from the Bavarian and Austrian armies are sent up to him for instruction. At Prague the University Chair in Balneology is held by Professor Kisch. There is also separate instruction in hydrotherapy. At the University of Budapest lectures upon hydrotherapy and climatology were founded in 1898, and are now given by Dr. Kuthy Dezsö. The professor of pharmacology (Professor Bokay) includes the outlines of balneology in his course of instruction.

It was in an Italian university that the first lectureship of medical hydrology was founded. As in France and Spain, this term is held to include both hydrotherapy and balneotherapy. Professor Casciani, "Libero-Docente" in *Idrologia medicale* in the University of Rome, delivers in the winter session to fifth-year students a bi-weekly lecture followed by practical demonstrations in the medical baths of the city. A special course of post-graduate instruction over the whole range of physical therapy is given from time to time. Professor Vinaj holds a similar

[1] *See* J. H. Pratt, "The Present Status of Hydrotherapy and other forms of Physical Therapeutics," *Boston Med. and Surg. Journ.*, 1904, cli, p. 201.

appointment in the University of Turin, Professor Vincenzo Gauthier at Naples, and Professor Lorenzo Giunti at Cagliati. In addition, there are systematic lectures on seaside treatment at Naples, and on general physical therapy at Bologna. I understand that a diploma in medical hydrology can be obtained after a special course of instruction and examination. It is interesting to note that at the University of Stockholm lectures on balneology were given as early as 1880 by Dr. Alfred Levertin, having especial reference to Swedish methods, including mud baths. In Switzerland the University of Lausanne appointed Dr. de la Harpe in 1892 as Privat-Docent in Balneology and Climatology, including also Hydrotherapy. There is also provision for lectures on hydrotherapy at the University of Berne, and on physical treatment at Zurich. As regards Belgium and Holland, I am informed that Dr. Jules Felix lectures upon medical hydrology in Brussels, and Professor de Niet tells me that he commenced his lectures upon hydrotherapy at the University of Utrecht in 1904.

In America, Professor Simon Baruch holds the Chair of Hydrotherapy in the University of Columbia (New York). His work on the "Principles and Practice of Hydrotherapy" (1890) was the first treatise upon this subject in the English language. In addition to systematic lectures to the senior class at the Medical Faculty of this University, there are opportunities for practical instruction, followed by a qualifying examination. I am informed that this subject is included in the course of therapeutics at the Johns Hopkins University, and that there are private lectures at Chicago.

Taking the countries as a whole, we have seen that in France there is one chair of hydrology, and that lectures are given by Professors *agrégés* at the various universities from time to time. In Germany there is one chair of hydrotherapeutics, and regular lectures are given in both branches of hydrology at ten of the universities. In Austria and Hungary there is one chair of balneology, and lectures are given in both branches at Vienna, Prague, and Budapest. In Italy there is no chair, but there are "free teachers" at five universities. There are also free teachers in the universities of Switzerland, Holland, Belgium and Sweden; and in America one chair in hydrotherapy.

Most of these educational facilities have been provided within the last twenty years. In general the subject has not been made obligatory, and lecturers write to me, "Not an examination subject, therefore the lectures are badly attended." But at some universities questions on hydrology are included in the medical examinations. At the Columbia University hydrotherapy is a necessary part of the curriculum, and

according to my information this is also the case at certain universities in Germany. In Italy a diploma in hydrology can be obtained after a special course and examination.

If we are right in thinking that physical therapeutics, and especially medical hydrology and climatology, have taken, and are destined to hold, a large part in medical treatment, especially in chronic disease, surely it follows that these subjects must be taught as an essential part of a medical education. If it be objected that it is impossible to extend an already overloaded curriculum, it may be questioned, in reply, whether it is the instruction in therapeutics that ought to be omitted. Has not medical practice already run far in advance of systematic teaching?

In conclusion, I must leave the facts that I have cited to speak for themselves. To point out the entire absence of this teaching from Britain is tantamount to urging the necessity for it. How would it affect the general practitioner? If this practice and teaching were cultivated in Britain it would open to him the resources of scientific hydrotherapy. How would it affect the practitioner at the British health resorts? We need scientists and observers at every health resort, whether a climatic or a hydro-mineral station. Undoubtedly many of the practitioners at our spas have, to their honour, qualified themselves by scientific studies for their special work. But is it not certain that in future years a medical man duly instructed in hydrology, and holding a British diploma in hydrology, will be a better spa physician than one who has enjoyed no facilities for instruction and qualification in the department of medicine to which his work belongs? It must needs be that the due qualification of the health resort practitioner is in the best interests of the profession at large.

Again, it may be said that there is less need for a chair of hydrology in our country as compared with France or Germany, because our medicinal springs are comparatively few in number. But London is, or ought to be, in medicine also the capital of the Empire. Twelve years ago I had occasion to make some inquiry as to the medicinal springs of India, in which I was much beholden to Sir George Birdwood and the late Sir Joseph Fayrer. The conclusion arrived at was that we have in India one of the most valuable and extensive and varied, if not the most valuable, group of medicinal springs in the world—many of them situated in fine climatic stations. I will only mention the Hazaribagh district in Bengal, where the country for more than 100 miles in all directions is teeming with thermal springs at an elevation of about 1,500 ft.; and the remarkable Tawala Mukhi (Flame's Mouth) in the Kangra district of the Punjab. A recent inquiry at the India

Office elicits the surprising fact that up to the present time there has been no scientific report made upon the mineral waters of India. The thermal springs of New Zealand form another group of exceptional value and interest—a fact which I am happy to say has been recognized by the Government of that Colony.

Medical science is not insular. In this Section of the Royal Society of Medicine we have to carry on the work that Hyde and his companions began; and his example and memory should make us better comrades, more devoted to the common weal and to the advancement of our profession and our science, more willing to subordinate our own aims and interests, more strenuous in service, more patient under difficulty, more abounding in hope.

*Note.*—In addition to authors quoted in the text, the following have kindly furnished me with information, which is gratefully acknowledged: Professor S. Baruch, New York; Professor A. Berg, Marseilles; Dr. Langdon Brown, London; Dr. Brocchi, Plombières; Dr. P. Casciani, Rome; Dr. J. D. Clippingdale, London; Professor Frankenhäuser, Berlin; Dr. Kuthy Dezsö, Budapest; Professor Garrigou, Toulouse; Dr. de la Harpe, Lausanne; Dr. Guy Hinsdale, Hot Springs; Professor Geigel, Würzburg; Professor H. Kisch, Marienbad; Dr. Levertin, Stockholm; Dr. J. S. McKendrick, Glasgow; Dr. Gustave Monod, Vichy; Dr. D. de Niet, Utrecht; Dr. J. H. Pratt, Boston; Dr. Tallarico, Italian Hospital; Dr. J. C. Thresh, Chelmsford; Dr. G. S. Vinaj, Turin; Dr. Ludwig Wick, Vienna; Dr. Hale White, London; Professor Winternitz, Vienna.

The CHAIRMAN (Dr. Theodore Williams) dwelt on the great importance to medical men of a thorough acquaintance with the analysis and effects of mineral waters, whether for drinking or bathing. After all, the mineral waters were the most ancient form of therapeutics, and had survived many revolutions in medical practice. It was chiefly in chronic cases they were of most value. Though as a rule they contained the various ingredients in much smaller doses than those used in pharmacopœial medicines, it was found that these comparatively weak solutions of the salt in question, if taken in large quantities of mineral water, exercised a distinctly beneficial effect, whereas a prepared artificial solution of the same strength gave no results. This might be explained by the absence of natural gases from the artificial solution, and possibly by the presence in the mineral water of some element which could not be detected by the present methods of analysis; for it was a curious fact that most of the new metals and other elements were discovered in mineral waters. Dr. Williams hoped to see the subject of hydrology introduced soon in England into the courses of medicine, as was done in most civilized countries. It was a desirable and important addition to the instruction in therapeutics.

# Balneological and Climatological Section.

May 27, 1911.[1]

Dr. T. Fred Gardner, President of the Section, in the Chair.

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## The Influence of Calcareous (Hard) Drinking Water in Health and Disease.

By Percy G. Lewis, M.D.

In estimating the various influences which combine to make up the elements of any particular climate it is reasonable to suppose that the drinking water of a locality may be a matter of considerable moment, and the subject of our discussion to-day is "hard water" wherever it may be found. But the water which most particularly concerns us is that which owes its hardness to the presence of chalk in solution.

A large number of different diseases have been attributed to the influence of chalky drinking water, but those more usually alleged are gout, rheumatism, calculus, constipation, biliousness, dyspepsia, eczema, goitre, and arterio-sclerosis.

### In Favour of Baneful Influences.

(1) It is an undoubted fact that many persons when coming to visit or reside at Folkestone do suffer, at any rate at first, from some of the different conditions mentioned, though it remains to be proved that the hard drinking water, rather than other causes, is the reason of this. We shall return to this point later on.

(2) From a discussion held by this Section in 1907 on the "Influence of Climate in Gout, Rheumatism and Rheumatoid Arthritis," there followed as a main result the opinion that climate had a good deal more to do with the production of these diseases than water. There was a general agreement that warmth, an even temperature, dryness, free ventilation of the district, house construction,

[1] Provincial Meeting held at Folkestone.

the character and habits of the people, were all important matters. Dr. Buckley, who opened the discussion, suspected that the functional disorders of the liver common with people on first coming to the seaside might be the precursors of gout, &c. But these effects are acknowledged to be but temporary. Dr. Buckley, however, said that he was convinced that places where the water was hard and chalky were unfavourable to gout. He apparently based his opinion on the number of patients who go to Buxton for treatment from Folkestone and the neighbouring resorts. There is, however, quite a different explanation than the drinking water, of the gout from which these persons suffer. In the first place, most of these people are not natives of the seaside towns at all, but come to live in them on retirement from more active work. In all probability they acquired their gout long before taking up their residence here, and they as a rule probably drink very little or none of the local water supply in an unboiled condition, partaking usually of the aerated or bottled waters at their meals. Moreover, they unfortunately persist in the habits and diets which gave them their gout in the first instance, and which may be expected to bring forth more and more frequent exhibitions of their malady as life advances. Dr. Buckley would find very few, if any, of his patients who were total abstainers, or who imbibed as much as a pint daily of calcareous water.

(3) Sir Hermann Weber, in his "Climatology and Balneology," says: "It has been suggested that hard drinking water accounts for some of the indigestion and biliousness in visitors to health resorts on the chalk downs of the south coast of England." He goes on to say that "there is some evidence that the administration of calcium carbonate (and chalky mineral waters) tends to diminish the amount of uric acid excreted in the urine, and perhaps in some way to lessen its production." Again, he says: "Chalk does not appear in any way to increase the size of urinary concretions. Contrexéville water, which is harder than Bath water, owes most of its repute to its diuretic action." And: "It is possible the internal employment of calcareous waters might be useful in some cases of chronic and recurrent urticaria, chronic headache, &c., conditions which are associated with deficient coagulability of the blood."

(4) Nor if we turn to other authorities do we find them any more definite. Rumpf, for example, states that when much lime is taken with the food some of it remains stored up in the body, and may increase the tendency to calcareous deposits in the cardiovascular system of old people. Rumpf evidently considers this a disadvantage;

but on the other hand, if we refer to Sir Clifford Allbutt, we find him of opinion that hard drinking water plays no important part in the causation of arterio-sclerosis. Sir Clifford Allbutt merely regards calcification as a secondary event which does not enter into the process until the lesion is otherwise established. Then he says calcification may be some protection to a decaying vessel. In any case, if the degenerative process wants lime there is plenty to be had both in the body and in the food, without calling on the chalk in the water. In the arterio-sclerosis of high arterial pressures calcification is a late event.

(5) The Commission which was appointed (by the Home Department in 1851) to investigate the quality of water available for the supply of London, after taking evidence from a large number of medical men and chemists, reported, amongst other conclusions, as follows: "The only observations from which an interference of the lime in water in deranging the process of digestion and assimilation in susceptible constitutions has been conjecturally inferred, have been made upon water containing much sulphate of lime and magnesia, as the Brighton shallow well water or the hard selenitic water of the New Red Sandstone, and have no force when applied to the Thames and its kindred waters, as the earths exist in these principally in the form of carbonates." The objections, then, do not apply to Folkestone and chalky water.

(6) If we turn to books on materia medica we learn that lime salts given in medicinal doses only enter the circulation in very small quantities, and appear in the blood as phosphates. If merely a little enters in this way, how very small a proportion is presumably absorbed from drinking water. Is there any reason for considering it as otherwise than as a negligible quantity? Is there any evidence that hard water is useful in any of those conditions for which calcium salts are commonly prescribed with success? Are the diseases for which calcium salts are given rare in communities supplied with hard water? We find plenty of scope for prescribing calcium salts in Folkestone. The important part played by lime salts as a constituent of bones has suggested their use as a specific remedy in rickets, fractures and other diseases of these structures, and medicinal doses of calcium salts are given for these conditions. There is no evidence, however, that calcareous waters are of any service in this respect. Of other diseases for which calcium salts are given, the most prominent are menorrhagia, hæmophilia, purpura, hæmoptysis, and tendencies to capillary hæmorrhages in general, urticaria, pruritus, some forms of headache,

exophthalmic goitre, and scrofulous glands. It cannot be said that these diseases are rare or do not occur in the health resorts in question. But no medical man practising in these resorts would expect to obtain a curative effect from prescribing even large quantities of water from the main. Undoubtedly many women who live in the seaside towns of this district suffer more at their periods than they do elsewhere; but as amenorrhœa is also common, it is difficult to imagine that the water supply plays any rôle in the matter whatever.

(7) As regards goitre, quite a number of cases are treated annually at the Folkestone Hospital. It appears, however, that most of these cases come from the country districts outside the town away from the hard water supply. Goitre is more often associated with limestone districts. It is prevalent in some areas and absent in others where the conditions appear the same. Melted snow water is supposed commonly to exert more influence in the causation of this disease than any other waters, however hard.

(8) As regards the skin, Mitchell Bruce says that the action of calcium salts is desiccative and astringent. This, then, may have some bearing on the causation of eczema, a disease, however, which is uncommon here. There is no doubt that it is possible to more thoroughly cleanse the skin with soft water than with hard. Ladies who reside here mostly use distilled water for washing their hair, as they find that the local hard water causes their hair to become dry and brittle.

(9) Another interesting fact is that stated by Parkes in his work on Hygiene. He mentions that coachmen and grooms dislike hard drinking water for horses, and there is a consensus of opinion amongst them that the animals' coats suffer from its use, and become harsh and dry instead of sleek and glossy. Horses drink large quantities of water in an unboiled condition. This evidence, therefore, appears to be of an important character. Our patients, however, do not drink large quantities of unboiled hard water, so that this fact is somewhat discounted.

(10) If calcium salts do not act directly, can they act indirectly? The experiments of Dr. W. G. Little on the solubility of the various salts of uric acid at the temperature of the body, and in saline solutions, rather suggest the truth of this. He found that the addition of a small amount of sodium chloride—viz., $\frac{1}{2}$ per cent.—to distilled water increased the solubility of calcium and magnesium bi-urates, but reduced that of sodium bi-urate to almost zero. Dr. Little also found that the addition of even small percentages of calcium salts to distilled water had the

effect of very much lessening its solvent action on sodium bi-urate. Dr. Little concluded from these experiments *in vitro* that the formation of deposits and tophi was largely helped by the presence of calcium salts. These experiments made in glass vessels cannot, however, be made to apply to the human economy and its drinking water; the amount of calcium salts imbibed in drinking water being very small compared with the amount of the same salts taken in food. Calcium salts are contained in milk, milk biscuits, milk puddings, cheese, the outer layer of seeds, such as the wholemeal of wheat and oats. Many varieties of wine, even the better qualities, and all the inferior qualities, and all malt liquors, contain calcium salts.

### Considerations against Baneful Influence.

We see, then, that there is little that is convincing which can be said in favour of the view that chalky drinking water exerts a baneful influence in health or disease.

Now, having considered the evidence in favour of the view that chalky water is pernicious to the health, let us briefly review what can be stated on behalf of the opinion that such water is not noxious in its effects.

(1) We will begin with Parkes. He says in his book on Hygiene that calcium carbonate in drinking water does no harm.

(2) Hard water is less easily contaminated with organic matter than soft.

(3) As four-fifths of the Earth's surface is provided by Nature with hard water, it can hardly be supposed that Nature would have distributed water of this kind with so lavish a hand were it to have a very deleterious effect on mankind.

(4) The mortality in Great Britain of the towns supplied with hard water is rather lower than that of towns supplied with soft water. Without attributing the mortality in either case as due to the drinking water it is nevertheless an interesting fact, as it points to soft water having no great advantage over hard.

(5) Many of the mineral waters, such as those of Contrexéville, which are beneficial in gout contain considerable quantities of carbonate of lime. In fact, carbonate of lime is found in most of the waters at different spas, where gout, rheumatism, &c., are successfully treated. On the hypothesis of the noxiousness of calcareous water in gout, how, indeed, is to be explained the disappearance or diminution of tophi (chalk-stones) in persons undergoing cures at the various spas? If there is anything in this idea that calcareous water is injurious, we shall, forsooth, have to abandon altogether treatment by mineral waters.

(6) The upper and middle classes drink mostly bottled waters at their meals, or water that has been boiled, as in tea or coffee. Can it be said that these classes suffer less from gout, rheumatism, &c., than the lower classes? Has it ever been proved that the blood of persons habitually drinking hard water shows an increased coagulability as compared with the blood of persons drinking soft water? Has it been noticed that diseases due to increased coagulability, such as thrombus and embolism, are more prevalent at hard water places than at others? Do the lower classes suffer more in this way than the upper and middle classes? If calcium carbonate is provocative of gout, rheumatism, &c., how can that fact be reconciled with the microbic theory of these diseases? How can be harmonized causes so widely different?

(7) As regards calculus. The late Sir Benjamin Ward Richardson was strongly of opinion that hard water had no effect in the production of calculi, thus agreeing with Weber, and opposing the popular idea to the contrary. Recently Dr. Benjamin Moore, in an article on renal calculi, stated that lime should be withheld from oxalurics on the ground that it would be liable to cause oxalate of lime calculi to form in the urinary passages. Dr. Johnston-Lavis, however, in criticizing this thesis, argued that "no dietary can be planned which would reduce the calcium element so low as to be insufficient to combine with the few centigrammes excreted daily even by an advanced oxaluric." "Surely," he says, "if these few milligrammes of oxalic acid which are daily excreted are neutralized by the lime salts of our food, any amount of additional lime cannot do further harm." The problem with oxalurics is not to prevent the introduction of calcium salts, but the absorption of exogenous oxalic acid in foodstuffs. For it is from the perverted metabolism of carbohydrates that the endogenous oxalates are derived. Dr. Johnston-Lavis affirms that the prevention of the formation of calcium oxalate stones in the urinary passages by means of calcium starvation has been tried and has failed. The waters of Vittel, containing much calcareous matter, are taken by a large number of visitors suffering from oxaluria every year. The Vittel physicians inform us that almost without exception they find the diurnal amount of oxalates is markedly diminished or very frequently disappears, and that this result is apt to be permanent even though these people are constantly drinking Vittel water and living on a dietary in which lime-bearing food is not excluded. On the other hand, at the Section for Pharmacology and Therapeutics of the British Medical Association Meeting in July, 1910, Professor Hans Meyer, of Vienna, reported that it had recently been proved that oxalic acid poisoning was due to the withdrawal of the

calcium salts from the body. The cardiac depression, the irritability of the sympathetic nervous system, and the general toxic symptoms of oxalic acid poisoning could, he affirmed, be relieved by the administration of calcium salts. The late Sir John Simon, in giving evidence before the Commission on Water Supply, said there were many explanations of the alleged prevalence of stone in the bladder in Norfolk—amongst which Norfolk dumplings held a chief place! The assertions became current when Norfolk had a famous lithotomist. It was possible that his reputation, by attracting sufferers into temporary residence in the district, or perhaps his zeal in discovering cases of stone, may have given the district a fictitiously lithogenous character. Or was it something in the shape of the dumpling which suggested a likeness to a calculus?

(8) Again, it must be remembered that there is a large population living on chalky water, and if there were any very decided ill-effects on their health the fact would be notorious—and we should not be debating it to-day. But, on the contrary, there is evidence pointing to some advantage to the human economy from the ingestion of calcium salts. Dr. Arbour Stephens, in February last,[1] published an article in which he set forth the view that the lack of calcium salts in the food of troops on active service was a predisposing cause of enteric fever and dysentery. There is no doubt, too, but that hard water is far preferable to soft for growing children. Birds are notorious calcium eaters. It has never been suggested that they suffer in consequence, unless, indeed, it be the domestic hen—and then only when its diet has been undertaken by Dr. Chalmers Watson, or some other member of this Section.

### Explanation of the Alleged Baneful Effects.

On what, then, rests the explanation of the baneful influences alleged to be due to hard water. It is said to cause constipation, but Weber says, if constipation occurs it is only necessary to drink *more* of this water in order to overcome the constipating tendency. Even if constipation is present the kidneys are stimulated, and owing to the increased stimulation the elimination of calcium salts is equally effected. The materia medica books tell us that lime salts, and especially chalk, act as depressants to the glands of the gastric mucous membrane, so that their prolonged administration might be supposed in some way to alter nutrition. But this statement alludes to medicinal doses of lime salts or chalk. And appetite, so far from being depressed is stimulated by sojourn in such places as Folkestone and its sister resorts. It may be

[1] *Hospital*, 1911, xlix, p. 557.

that this idea of the harmfulness of chalk first arose from the mistaken notion that tophi (so-called chalk-stones) were really composed of chalk instead of urate of soda, to which chalk has no relation, being as different as chalk from cheese. Therefore it is impossible that this popular idea can have any foundation in fact. It is, however, in the so-called "seaside biliousness" that the real origin of the fallacy can be found. Nor is this biliousness to be wondered at. First, consider for a moment how completely visitors to the seaside change their habits. Consider the stimulation of appetite due to the change of air and environment, the increased tissue change, and the augmentation in the amount of exercise—all tending to cause an increased amount of auto-intoxicative material to enter the blood.

When these facts are taken into consideration, need one feel any surprise that the excretory organs at first fail to keep pace with the extra work thrown on them, fail, as it were, to keep the balance, and that temporary biliousness results from these causes?

Are we, then, to attribute the ill-effects which sometimes seem to synchronize with a visit to Folkestone to our hard water? Let us beware of the *post hoc ergo propter hoc* fallacy. It has been shown that there may be a variety of causes contributory to an attack of seaside biliousness, and other of the diseases alleged to be due to hard water In all probability the hard water does not enter into their causation at all. It may be pointed out that the effects sometimes attendant on a visit to the sea occur equally in those who drink the hard water and in those who do not, a fact which indicates a cause other than the water for these illnesses.

In conclusion, then, we may claim to have shown that there is no evidence that calcareous waters do any harm in either health or disease, and that the popular notion to the contrary has no rational basis in fact.

BIBLIOGRAPHY.

Rivers Pollution Commission Report, 1868.
Bruce, Mitchell. "Materia Medica and Therapeutics," 1907.
Buckley, C. W. (and others). *Journ. of Balneol. and Climatol.*, 1907, xi, pp. 67-89.
Hamer. "Manual of Hygiene," 1902.
Johnston-Lavis. *Brit. Med. Journ.*, 1911, i, p. 966.
Jones, Llewelyn. "Arthritis Deformans," 1909.
Little, W. G. *Bio-chemical Journ.*, Liverpool, 1909, iv, p. 30.
Mason. "Water Supply: Chemical and Sanitary," 1896.
Meyer, H. *Lancet*, 1910, ii, p. 828.
Moore, B. *Brit. Med. Journ.*, 1911, i, p. 737.
Parkes. "Hygiene," 1891.
Stephens, G. Arbour. *Hospital*, 1911, xlix, p. 557.
Thresh. "The Examination of Waters and Water Supplies," 1904.
Weber. "Climatology and Balneology," 1907.

## DISCUSSION.

Dr. PERNET considered that calcareous water taken internally was not productive of eczema. He had seen a very large number of cases of eczema, and they came from many places with water supplies of various kinds. As to the local effects of calcareous and hard water on eczema, there was no doubt that they were bad. Again, the local use of calcareous and hard water might in some skins lead to an eczematous-looking dermatitis. He was of opinion that at the seaside climatic conditions were important, with other factors, in producing eczema and making it continue when once started. On the other hand, he had seen cases of eczema benefited by a sojourn at the seaside, but this was certainly not the rule.

Dr. BAGSHAWE (St. Leonards-on-Sea) wished to inquire as to the composition of Folkestone water. Was the hardness due to calcium carbonate alone or to sulphates or other mineral coming from the strata below the chalk? Calculus is found, by long hospital experience, to be infrequent at Hastings, in striking contrast to that at Cambridge, where the museum contains an enormous number of stones, in accord with the hospital experience. Here the water is from beneath the chalk. There are no chalk or carboniferous rocks within ten miles of Hastings, and the water is not hard except from the presence of an irregular quantity of iron, dealt with by magnetic filtration. He believed that the tendency to constipation among newcomers was common to all seaside places, and was probably due to the fresh surroundings and mode of life.

Dr. W. J. TYSON (Folkestone) said that whether the title of the paper was chosen by design or arose by accident, the result was a happy one, as Folkestone was well supplied with hard water. He thought that there was little doubt that such troubles as mild chronic rheumatism, certain skin diseases, biliousness and perhaps the anæmia of young people, were more common at the seaside than elsewhere, but this seemed to him to be due not to the presence of hard water, but to the climate, for the hard water found in inland towns did not appear to be a factor in the causation of the aforementioned diseases. From an economic and cosmetic point of view soft water was preferable to hard, for the latter often caused considerable expense to the householder from the furring of pipes, &c., and for washing purposes more soap was required.

Dr. CLIPPINGDALE recited his study of the Chiltern Hills, where he had found that the process used for softening water, while it had diminished the tendency to calculus, had increased the tendency to goitre.

Dr. LENNOX WAINWRIGHT (Folkestone) maintained that there were three factors to be considered in dealing with the question—viz., the diathesis of the individual, the climatic conditions, and the nature of the water supply.

Many people came to Folkestone after leading strenuous lives in the East and elsewhere, and were in a pathological condition of health. Such patients required individual treatment in the matter of water, just as much as in the matter of diet. Hard water had the advantage that it was free from contamination, whilst distilled and softened waters were almost impossible in town supplies. Chalk might be removed, but lead and disease might then be carried. Constipation was common in sailors who drank condensed water, and it could not in this case be ascribed to chalky water.

Dr. LEONARD WILLIAMS was of opinion that the alleged influence of calcium salts in drinking water could not bear examination. In the formation of calculi it was the acids, oxalic and uric, which were really responsible, and not the calcium base. It was impossible to get rid of all the calcium even if one wanted to. The patient would die of osteo-malacia. The consideration of osteo-malacia and rickets showed clearly that the question was more one of the activity of the internal secretory glands, the ovaries, the thyroid, and others.

Mr. BATEMAN (Folkestone) said that Folkestone water was derived from deep wells in the chalk, and that, on analysis, he had found its composition (expressed in grains per gallon) to be as follows:—

| | |
|---|---|
| Chlorides ... ... ... ... ... ... | 1·89 |
| Nitrogen in nitrates and nitrites ... ... ... | 0·25 |
| Free ammonia ... ... ... ... ... | Trace only |
| Albuminoid ... ... ... ... ... | 0·0008 |
| Oxygen absorbed in 15 minutes ... ... ... | Trace only |
| ,, ,, in 4 hours ... ... ... ... | 0·022 |
| Hardness (total) ... ... ... ... ... | 18·7 |
| ,, (permanent) ... ... ... ... | 2·9 |
| Total solid ... ... ... ... ... ... | 23·66 |

He pointed out that the amount of chalk taken in one pint of water would be about 2½ gr. to 3 gr., when drunk unboiled. If boiled, the amount would be about 1½ gr., which was not sufficient to be considered deleterious in any way.

Dr. A. F. STREET (Westgate-on-Sea) said he agreed with the views so clearly expressed by Dr. Lewis. He maintained that if chalk-containing water could produce the effects sometimes attributed to it, those effects could hardly fail to be notorious; and that physicians, who had practised for many years among populations using water drawn from wells in the chalk could not fail to be familiar with them. It was almost impossible to believe that such evil effects could occur and yet remain unknown to them; surely the weight of evidence had proved that this was not so. Where a prejudice against the use of chalk-borne water existed, he believed it to be due either to the common lay error that the so-called "chalk-stones" contained chalk, or to the ill-founded medical presumption that gout or rheumatism, or both, must be prejudicially influenced thereby.

# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

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***VOLUME THE FOURTH***

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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1910-11

## SECTION FOR THE STUDY OF DISEASE IN CHILDREN

LONDON
LONGMANS, GREEN & CO., PATERNOSTER ROW
1911

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The Council think it right to state that the Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

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# Section for the Study of Disease in Children.

October 28, 1910.

Dr. E. CAUTLEY, President of the Section, in the Chair.

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## Case of Achondroplasia.

By ERIC PRITCHARD, M.D.

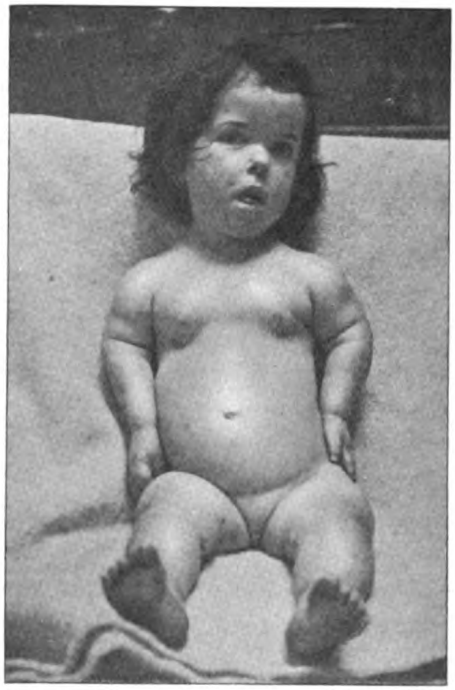
(Shown by W. HAMPSON.)

THE patient, a micrometric dwarf, was brought to the Queen's Hospital for Children for difficulty of breathing and disturbed sleep. On examination the child was found to be a typical achondroplasic and to be suffering from enormously enlarged tonsils and obstruction of the nasopharynx. This obstruction was partly due to the presence of adenoids and partly caused by extensive falling in of the bridge of the nose and narrowness of the bony parietes of the pharyngeal cavity.

The child is a female, aged 5 years; both the parents are healthy, and there are five other children, all normal and in good condition. There is no history of miscarriages nor of abnormalities in the ancestors. The child is stated to have been quite healthy at birth (breech presentation), but when three weeks old "something" was noticed "to be wrong with its spine," and it was taken to a children's hospital for advice and treatment. For this affection it was treated by six months' extension on a flat board. The achondroplasic condition, if it then existed, does not appear to have been noticed, but the mother's attention was drawn to the fact that the infant had no "kneecaps" and that the arms "would not straighten." Apart from the spinal condition, the child appears to have suffered from no symptoms, although it cut its teeth late (twelve months) and did not walk till the third year.

At the present time the child presents the typical characteristics of achondroplasia. Its total height is only 30 in. (normal 39 in.) The

head is large relatively to the body (9 in. in height and 20½ in. in circumference). The length of the trunk is 14 in. The circumference of chest is 19 in., and of abdomen 20½ in. The body is relatively large to the length of the limbs. The arm is 10 in. and the leg 12½ in. (Micromelia.) The humerus and femur are relatively short as compared with the entire length of the arm and leg respectively. (Rhizomelia.) The navel is situated 2 in. below the centre of the body. The curvature of the long bones is exaggerated, especially in the humerus, radius, and



Achondroplasia.

femur. The shafts of the long bones show no clear indication of medullary cavities with the exception of the ulnar, and the epiphyses show enormous hyperplasia of the unossified cartilage. The elbow-joint and the knee present striking appearances in the radiograms, owing to the enormous interval between the nearest points of ossification in the component bones. The hyperplasia of cartilage at the elbow-joint seriously interferes with extension of the fore-arm, which can only be extended to an angle of about 150°, and hyperplasia of the head of the humerus prevents complete adduction of the arm. In the radiograms

neither of the patellæ can be distinguished, and it is questionable whether they can be felt on palpation. Both the clavicles appear well developed, but the ossification of the innominate bones is very incomplete and the acetabulum is apparently shallow. In the hand the carpal bones cannot be clearly distinguished, though two centres of ossification are visible. The metacarpal bones are more distinct and relatively long. The same characteristics distinguish the bones of the tarsus and metatarsus. The hands are typically trident shaped, with wide separation of ring and middle finger, while the toes are square and of equal length.

The general appearance of the child, as shown in the photograph, is most striking and characteristic. The bossing of the frontal bones, depressed bridge of nose, pot-belly, marked lordosis, set-back of the shoulders, general shapelessness of the limbs and luxuriant growth of fine soft hair constitute an assembly of features which could hardly be mistaken for any other condition.

## Pathological Specimen of the Heart in a Case of Congenital Malformation.[1]

By T. R. WHIPHAM, M.D.

THE heart shows marked hypertrophy of the auricle and ventricle on the right side. The foramen ovale is patent, and the interventricular septum is deficient at its upper part. The chief feature is the great atresia of the pulmonary artery in the region of the pulmonary valves, which are welded together so as to leave only a minute opening. The presence of a small blood-clot further constricts the orifice. The ductus arteriosus is obliterated, and the left carotid artery arises from the innominate.

The child, during life, presented marked cyanosis and clubbing of the digits. At times there were no murmurs to be heard over the cardiac area, and at most there was but a very faint systolic bruit in the pulmonary region. When the child was shown, the red blood corpuscles numbered 9,440,000 per c.mm. They rapidly increased at the rate of 157,000 per c.mm. a day until a maximum of 12,740,000, with a hæmoglobin value of 200 per cent., was reached. Death occurred suddenly during an attack of dyspnœa at the age of 1 year and 11 months.

[1] Shown on May 27, 1910.

## DISCUSSION.

Dr. WHIPHAM said that in 1906 he showed a similar case before the Society for the Study of Disease in Children, that of a small infant who was very cyanosed, with clubbing of the digits. There was little or no murmur, and marked polycythæmia was present. The red corpuscles numbered 12,900,000. That case died in the country, and he did not hear of the death until a short time afterwards, so that he was not aware whether the diagnosis was correct, as there was no post mortem. He supposed the reason there was little or no murmur in such cases was that the pulmonary artery was so narrow that it did not allow a sufficient quantity of blood to pass through with each systole. With regard to polycythæmia, he tried to find out how many red corpuscles could be contained in a cubic millimetre. If one supposed that corpuscles were all of the same size, $7\mu$ in diameter and $2\mu$ in thickness, and that they were perfect disks, he found that a cubic millimetre would not contain 13,000,000; the number was something over 12,900,000. But that calculation was of no scientific value, as it left out of consideration the facts that the corpuscles were not all of the same size, and not perfect disks, being thinner at the centre than at the periphery, and it did not take into account the elasticity or compressibility of the corpuscles themselves. The statement, however, showed the great degree of polycythæmia which was present in the case.

The PRESIDENT (Dr. Cautley) said it was always interesting to have morbid specimens of congenital heart disease, because of the difficulty of diagnosis during life. He would be glad to hear what were the various diagnoses in the case when it was shown previously.

Dr. PORTER PARKINSON asked whether the cyanosis had also increased very much with the increase of the corpuscles. He asked the question because recently he had been having the corpuscles of various cases of cyanosis examined, and had found that whenever there was much cyanosis there was polycythæmia. Recently he had a patient in hospital with considerable emphysema, with secondary cardiac dilatation. That patient had 8,000,000 red corpuscles to the cubic millimetre and 120 per cent. of hæmoglobin. He had had many other cases of the same sort, not congenital heart trouble, but cyanosis due to other causes. One was general tuberculosis, and one or two had been cases of other lung disease with symptoms of back pressure on the heart. He had recently looked upon polycythæmia as a necessary consequence of cyanosis.

Dr. WHIPHAM, in reply, said he was glad to be able to state that the diagnosis previously made was correct, and the present President confirmed that diagnosis at the May meeting. The diagnosis of atresia of the pulmonary artery was made, with the possibility of an abnormality in the great vessels. The latter feature was very slight—namely, in the left carotid arising from the innominate. In answer to Dr. Parkinson, he agreed that polycythæmia was an accompaniment of cyanosis, but in that case he would not say that the

increased polycythæmia was accompanied by increased cyanosis, because the child was so markedly cyanosed at first, even in the early stages, when the corpuscles were below 9,000,000. He could not say the patient became more cyanosed.

## Congenital Deformity of the Palate.

By DOUGLAS WOOD, M.B.

THE patient is an infant five weeks old, with a congenital deformity of the palate. There is a wide cleft in the hard and soft palates. The former is arched over by an elastic membrane, from which several tumour masses arise and project downwards into the mouth. Of these, three are soft and somewhat pear-shaped; two being lined by mucous membrane, one by skin. Behind these are two which closely resemble the alveolus in appearance and to the touch. The interior of the nose is apparently normal. There is a congenital coloboma of the iris on the right side. It is a first-born infant. There is no history of any abnormality in the parents or their families.

Mr. LOCKHART MUMMERY said the case was a remarkable one, and he had never seen anything like it. He hoped that at some future meeting microscopical sections of the lumps on the palate might be exhibited, after removal, so that their nature might be ascertained.

## Sclerema Neonatorum, with Myositis Fibrosa.

By FREDERICK LANGMEAD, M.D.

THE patient is a female infant, aged 8 months, who was brought to the hospital because the fingers and toes were stiff. The condition had been noticed since birth. The facial aspect is peculiar, the lines of expression being almost absent and the mouth always gaping. It cannot be completely closed, but does so sufficiently to permit sucking. The tongue is dry and slightly excoriated from exposure. The mask-like expression and open mouth appear to be due to stiffening of the cutaneous and subcutaneous tissue of the face and neck. The eyelids move freely. The covering of the malar bones is hard and leathery. The skin all over the trunk is firm and inelastic, and can scarcely be pinched up; this is especially so over the back, but also over the chest and abdomen. The thighs and outer aspects of the calves are also

affected. The latissimi dorsi and pectorales muscles seem firm and contracted. The knees and elbows are kept slightly flexed, and can be extended with difficulty. The hands are small, and the fingers thin, tapering and wax-like, resembling those of a doll. The natural joint-wrinkles are absent; and although the finger-joints can be passively flexed at the metacarpo-phalangeal level, they are practically fixed below it. The feet are similarly affected to a less extent. The child lies almost motionless in bed, but takes food and sleeps well. If held erect the rigidity is very obvious, the effects of gravity and muscular relaxation being absent. She has been under observation since August 15, during which time no appreciable difference has occurred in her condition. The temperature rises daily to from 99° F. to 100° F.

Family history: There is one other girl alive and well. Nothing of importance bearing on the case can be elicited.

*Remarks.*—The case differs in many ways from ordinary cases of sclerema neonatorum. Although the condition dates from birth or soon afterwards, the distribution of the hardening of the subcutaneous tissues corresponds more closely to the sclerodermia of adult type. In sclerema neonatorum the skin and subcutaneous tissues are usually affected in a patchy manner, and not diffusely, as in the present case, while the hands and feet are usually spared. Another unusual feature in the case shown is the alteration in the muscles. Manipulation of the limbs reveals great limitation in movements of the joints, which is obviously due not so much to the hidebound condition of the superficial structures as to the hardness and immobility of the muscles. So hard are those that can be grasped, such as the pectorales and latissimus dorsi, that it has been suggested that myositis ossificans is present; but a complete radiographic examination shows the absence of any trace of calcification. The muscular abnormality appears to be due to a fibrous myositis. Another interesting feature is the undue length of the second toe on each foot, which, however, possesses only the normal number of ossific centres. The combination of sclerodermia and sclerodactyly in an infant with myositis fibrosa makes the case a very rare one, if not unique.

## DISCUSSION.

Dr. PORTER PARKINSON said the second toe of the foot should normally be slightly longer than the great toe. He asked whether Dr. Langmead was sure of the diagnosis. In some ways the case did not fit in with sclerema neonatorum; it seemed more like sclerodermia. The patient was rather old for sclerema, and her temperature was raised, whereas in sclerema it was lowered.

In one of his cases it never rose beyond 95° F., and in another it never rose above the normal. The patient with the very low temperature died and the other recovered. His experience of sclerema neonatorum was that it affected the trunk more than the extremities, and that if it affected the limbs it did not involve the hands or feet to the same extent; it was also more patchy than in the present case. Moreover, in that disease one could feel the thickened subcutaneous tissue, and it had not the same hidebound feel as in the present case. The feel of sclerema was likened by the house physician of the hospital to the feel of an unripe peach—one which was just beginning to ripen, into which the finger could be pressed slightly, but which did not pit. And there were not in this case the bluish patches usually seen in sclerema. The tongue was usually affected in sclerema. This child could suck fairly well, and the lips were unaffected. These were some of the points in favour of it being sclerodermia.

The PRESIDENT agreed that it was an unusual case, and was not on all fours with the usual type of sclerema. He regarded it as a sclerodermia, and possibly intermediate between sclerema neonatorum and fibrous myositis. There was a peculiar hidebound condition of the skin, very different from that of ordinary sclerema. He suggested it was possibly produced in a similar way, and that some of the cases of sclerema neonatorum were microbial or toxic in origin.

Dr. LANGMEAD, in reply, said he agreed in regarding the case as like sclerodermia of adult type. He thought the difference between the first and second toe here was greater than usual.

## Tumour of the Rectus Abdominis in a Child.

By P. LOCKHART MUMMERY, F.R.C.S.

THE patient is a healthy female child, aged 5½ years. The mother says she first noticed a lump in the child's abdomen about three weeks ago. She thinks that the lump has increased in size since it was first noticed. There is a distinct hard swelling in the upper half of the left rectus muscle, apparently in the posterior aspect, as it disappears on contraction of the muscle. The child has been apparently quite well since she was under observation.

### DISCUSSION.

Mr. MUMMERY said that there was some doubt about the cause of the tumour. At present it seemed to have almost disappeared. At the time the question of syphilis was considered, but there was no evidence of it. The child, however, was given iodide of potassium, and the tumour disappeared.

The PRESIDENT said there was little to be felt now, and he asked whether Mr. Mummery had considered the possibility of the lump being due to the rupture of a few muscle fibres, and consequent inflammation.

Mr. DOUGLAS DREW said his impression was that it was an inflammatory condition in the muscle itself rather than in the posterior sheath, because when one grasped the muscle and made the child contract it by sitting up, the muscle could be felt to be bigger than its fellow. As regards the cause, he thought it was either tuberculous or syphilitic, and his leaning at first was towards it being a tuberculous deposit within the sheath of the rectus. When the child lay in bed there was an oval-shaped prominence almost to the level of the umbilicus, but the swelling had greatly diminished under iodide of potassium.

Dr. F. PARKES WEBER asked whether Wassermann's reaction for syphilis was tried in the case. It might be useful both in regard to the diagnosis of the nature of the present tumour and in regard to treatment of possible future symptoms.

Mr. LOCKHART MUMMERY replied that there was no history or trace of injury; it was not a hæmatoma, as there was no pain, though that possibility was thought of. Rupture of muscle would be painful. There were no other tumours in the body. The clearing up after iodide must be regarded as an indication that it might be syphilitic, though other inflammatory swellings would clear up under the same treatment.

## Injury to the Brachial Plexus.

By DOUGLAS DREW, F.R.C.S.

A., MALE, aged 10 years, was admitted to the Queen's Hospital for Children on July 29, 1910, suffering from severe shock, having been crushed between the edge of the pavement and a van-wheel. There was extensive and severe contusion of the right side of the neck and shoulders, and paralysis of the right arm; and it was thought that there might be some injury to the cervical spine, but X-rays failed to show any lesion.

October 6: The right arm presents a paralysis of the Duchenne-Erb type; in addition to which there is some weakness of the extensors of the wrist, and there is also slight anæsthesia above the clavicle and over the deltoid region. There has been no improvement in the paralysed muscles, which show the reaction of degeneration. On the right side of the neck, 2 in. above the clavicle and just behind the sterno-mastoid, some induration can be felt in the tissues. The right scapula is carried away from the spine and is lower than on the left side.

DISCUSSION.

Mr. DREW added that the child was brought forward so as to get an opinion as to whether operation should be performed, and, if so, when. He thought operation should not be delayed in this case. He had not met with an injury of that nature in a child of that age. Birth paralysis was a different matter. The child showed no sign of improvement, and above the clavicle could be felt a hard mass of cicatricial tissue, which was the result of injury, possibly from tearing of the deep cervical fascia.

The PRESIDENT said the question in that case was more surgical than medical. As a physician, he strongly recommended operation, because he thought it was analogous to Erb's paralysis in babies, due to injury at birth. In those children, if there was no definite recovery after a year or so, it was advisable to operate. Here the injury was much more severe; there was more cicatricial tissue and only a remote possibility of recovery.

Mr. LOCKHART MUMMERY said he agreed with Mr. Drew that the time had come when operation in the case should be seriously considered. It was on the border line, because there was great difficulty about operation in a child of that size, and the chances of success were not great. Many cases of Erb's paralysis had been reported in which good results had been obtained, but there were some in which the condition had been made worse. But as the child would probably be unable to use the arm unless something were done, he agreed that operation should be done now, if at all. One cause which he believed operated in producing Erb's paralysis, but had not yet been mentioned, was Shutly's method of artificial respiration in the newly-born infant, which consisted in holding the face away, with the thumbs over the clavicles, and throwing the child backwards over the head and down again. He saw a case of Erb's paralysis at hospital in which that method was stated to have been carried out for three-quarters of an hour, and the brachial plexus was practically torn through. That danger should be borne in mind by those who practised midwifery.

## Separation of the Lower Epiphysis of the Humerus, with Displacement.

By DOUGLAS DREW, F.R.C.S.

S., MALE, aged 5 years. On June 21 the child fell and injured the right elbow. He was treated at a hospital, and came to the Queen's Hospital at the end of three months owing to the deformity. The case is one of separation of the lower epiphysis of the humerus, with displacement inwards. The bones of the forearm maintain their normal

relations with the articular surfaces of the humerus. The lower end of the shaft forms a marked prominence on the outer side of the elbow. There is three-fourths of shortening. The radiograph shows the epiphysis is attached to the inner side of the humerus by a large buttress of callus.

Mr. DREW said the question was what form of operation should be done. He thought it would be possible to remove the mass of callus which bound the epiphysis to the inner side of the shaft so as to get the bone into good position. Failing that, one could cut a piece off the shaft and reduce the deformity, but he would not do that unless he failed to get it into position by manipulation.

## Gangrene of Leg following Diphtheria.

By J. D. ROLLESTON, M.D.

BOY, aged 13 years, admitted to Grove Hospital for diphtheria on June 19, the seventeenth day of disease. The acute attack had been mistaken for mumps by the father, and it was not until his brother was infected that a doctor was sent for, and Klebs-Löffler bacilli were found in the throat.

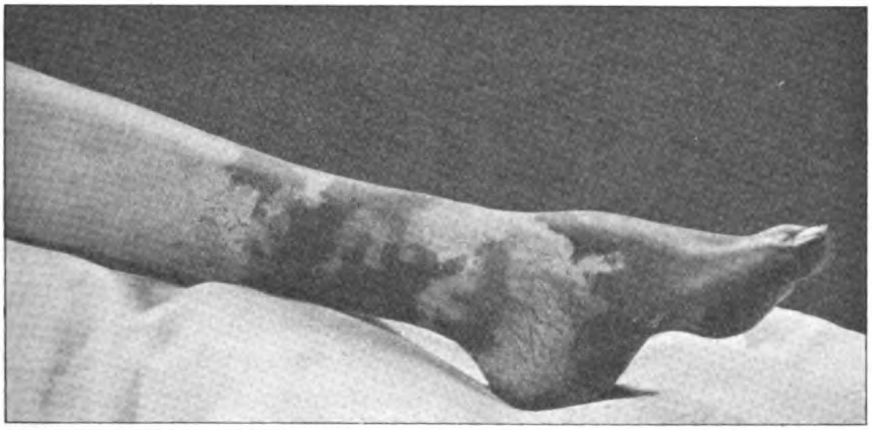
On admission: Throat free of membrane, voice nasal, knee- and ankle-jerks active, plantar reflex flexor, heart irregular; no antitoxin given. The same evening the right leg, from knee downwards, became cold, pale and anæsthetic. The toes could not be moved nor the ankle flexed. Plantar reflex lost. Circulation re-established in about four hours. During the next week the heart became much dilated, and a loud systolic murmur developed. Blood-pressure, 80 mm. Hg.; tenderness over spleen, liver enlarged and tender; albuminuria from admission till thirty-fifth day. Twenty-first day: Both legs cold, discoloured and numb; pulsation feeble in posterior tibial and dorsalis pedis arteries. Twenty-second day: Discoloration gone. Thirtieth day: Pain and discoloration of left leg; marked tenderness in popliteal space where pulsation of popliteal artery could not be felt: femoral pulse present in Scarpa's triangle; gangrene rapidly developed in left foot and leg. Photograph shows condition on thirty-second day; the gangrene did not extend and kept fairly dry.

On his transfer to Charing Cross Hospital on August 24, the eighty-second day of disease, the systolic murmur had gone; blood-pressure,

96 mm. Hg.; right knee- and ankle-jerk lost. Amputation at the knee-joint was performed by Mr. H. S. Clogg on August 29, the eighty-eighth day of disease, when an organizing clot was found in the popliteal artery. Subsequent recovery uneventful.

Charts of the temperature, pulse, and blood-pressure were shown.

Gangrene of the extremities as a sequel of infectious disease is relatively rare, especially in children. Barraud [3], in 1904, collected 103 such cases in patients up to the age of 30, but only 29 were under 14—i.e., as young as my patient—and only two followed diphtheria. After a prolonged search I have been able to find references in literature to eight other cases [2], exclusive of two cases of Raynaud's disease [5] following diphtheria, so that there is a total of only 11 cases on record, including the present case, in which gangrene of the extremities followed



Gangrene of left foot and leg after diphtheria, two days after onset of the gangrene.

diphtheria. Another two cases, recorded by Auché [1] and Escherich [6] respectively, showed signs of femoral embolism, but died before gangrene had time to develop. It is interesting to note that all the 11 cases occurred in children, in marked contrast to the gangrene following other infectious diseases, especially typhoid and typhus. In the few cases in which the date of onset is given, the gangrene is stated to have occurred in convalescence. In all but one case—where the gangrene affected the right index and medius—one or both of the lower extremities were involved, as in the present case. Only one of the previous cases—viz., Breton's—had any diphtheritic paralysis. In three

cases there was evidence of multiple embolism, which probably also occurred in my case. In three cases the initial angina was said to have been severe, and in one moderate. Though in the present case the throat was clean on admission to hospital, a retrospective diagnosis of severe angina could be made on the following grounds: (1) The disease was mistaken by the father for mumps—a mistake frequently committed, with disastrous results in the early stages of malignant diphtheria. (2) The occurrence of two phenomena almost exclusively confined to severe attacks—viz., early palatal palsy and enlargement of the liver. (3) Though by no means conclusive, the character of the brother's angina is suggestive, owing to the frequency with which severe attacks of diphtheria tend to affect members of the same family. Thus, in 51 out of 133 families, or in 38·3 per cent., suffering from diphtheria, two or more members of the same family had an angina of equal severity. Though recent research has shown that gangrene of the extremities following infectious disease is, as a rule, caused by autochthonous thrombosis, due to acute arteritis—in only 10 per cent. of Barraud's and 5·7 per cent. of v. Wartburg's cases was there definite evidence of embolism—in the present case the origin of the gangrene was almost certainly embolic: (1) There was a well-marked cardiac lesion; (2) co-existent emboli were probably also present in situations where primary arterial thrombosis is uncommon—viz., the spleen and kidneys, as well as in the femoral or popliteal arteries of the opposite limb, in which, however, collateral circulation was established; (3) the diagnosis of embolism in diphtheria has frequently been verified at autopsy. Thus, in 59 post-mortem examinations, I found infarcts in seven, or 11·8 per cent. In four these were present in the lungs only, in one in the left kidney, in one in the liver, and in one cerebral embolism was associated with renal infarction. In this connexion it may be stated that cerebral embolism, which my patient fortunately escaped, is much more frequent in diphtheria than embolism of the extremities. Though some cases of post-diphtheritic hemiplegia, of which about 70 have been recorded, may have been due to thrombosis or encephalitis, in the great majority of fatal cases evidence of embolism has been found [7]. The exact situation of the embolus which was the cause of gangrene in this case it is impossible to determine. An organizing clot was found in the popliteal artery, but, as Mr. W. S. Fenwick, Surgical Registrar of Charing Cross Hospital, has informed me, the lumen of the vessel was patent, so that an embolus had probably lodged higher up as well.

Of the 62 cases collected by Barraud in which the site of the arterial

obstruction was determined, unilateral femoral thrombosis was the commonest finding, being noted in 13 cases, and was closely followed by unilateral popliteal thrombosis, which occurred in 12 cases. It is probable, however, as Barraud remarks, that the latter figure is too high, for in amputation cases which recovered no exact knowledge was obtained as to the extent of the thrombosis, which may, as in the present case, have been present in the femoral as well as in the popliteal artery. It is probable that the abnormally low blood-pressure helped to prevent the establishment of a collateral circulation. The blood-pressure from admission until the end of the fifth week was 80, sometimes falling to 70; during the sixth week it ranged between 80 and 100, and in the seventh week and subsequently it ranged between 100 and 96. The prognosis of gangrene of the extremities following infectious disease is grave, but is by no means hopeless. It is of historical interest that in his account of the plague of Athens in 430 B.C., which has been identified by medical historians with one or other of the acute infections, but not, to my knowledge, with diphtheria, Thucydides states that many recovered after loss of their extremities (Bk. ii, 49). The mortality among Barraud's 103 cases was 51·6 per cent., but it must be remembered that many of these occurred in the pre-antiseptic period. Of the eight cases following diphtheria of which I have been able to ascertain the issue, four, including the present case, recovered, and four died.

Prophylaxis is important, and should consist of large doses of antitoxin and prolonged rest in bed in severe cases of diphtheria. The case of the patient's brother furnishes an instructive example of the value of this treatment. He was admitted with severe angina on the seventh day of disease, when he received 16,000 units of antitoxin. He made a good recovery, and no complications occurred beyond albuminuria and ciliary palsy. I may add that in only one of the 11 cases of gangrene following diphtheria—viz., that recorded by Breton—had antitoxin been employed. Finally, I would draw attention to the fact that, though more than eight weeks elapsed between the occurrence of the gangrene and the amputation, no harm resulted from the delay. An earlier operation was considered inadvisable owing to the boy's general enfeeblement and his cardiac condition. For the first fortnight following the onset of the gangrene the temperature ranged between 96° F. and 100° F., and on one occasion reached 102° F., but subsequently it remained practically normal.

REFERENCES.

[1] AUCHÉ. *Rev. mens. des mal. de l'enf.*, Par., 1904, xxii, p. 326.

[2] BENDIX. "Lehrbuch der Kinderheilkunde," 1910, 6 Aufl., p. 528; BRETON, *Bull. de la Soc de Péd.*, 1902, iv, p. 244; HENOCH, *Berl. klin. Wochenschr.*, 1890, xxvii, p. 431; POUPON, *Progrès Méd.*, 1883, xi, p. 10; ROSENTHAL, *Berl. klin. Wochenschr.*, 1890, xxvii, p. 481; VEDDER, *Trans. Med. Soc. State of New York*, 1879, p. 259; and cases of MENZEL, MORONI, MUNN, and WARD quoted in *Surg. Gen. Cat.*, art. "Diphtheria," 1882, p. 805, and 1899, pp. 309 and 310.

[3] BABRAUD. *Deutsche Zeitschr. f. Chir.*, Leipz., 1904, lxxiv, p. 237.

[4] *Idem.* Loc. cit.; EICHHORST, *Deutsches Archiv f. klin. Med.*, Leipz., 1901, lxx, p. 519; VON WARTBURG, *Beiträge zur klin. Chir.*, Tübingen, 1902, xxxv, p. 624.

[5] CHEVRON. *Thèses de Par.*, 1899-1900, No. 112; POWELL, *Brit. Med. Journ.*, 1886, i, p. 203.

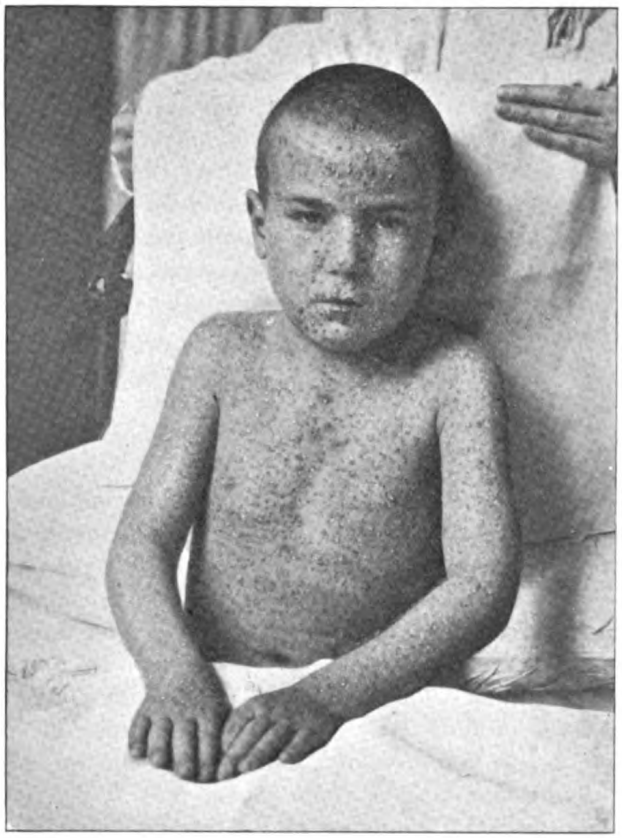
[6] ESCHERICH. *Wien. med. Wochenschr.*, 1907, lvii, p. 474.

[7] ROLLESTON, J. D. *Rev. Neurol. and Psych.*, Edinb., 1905, iii, p. 722, and *Practitioner*, 1909, lxxxii, p. 110.

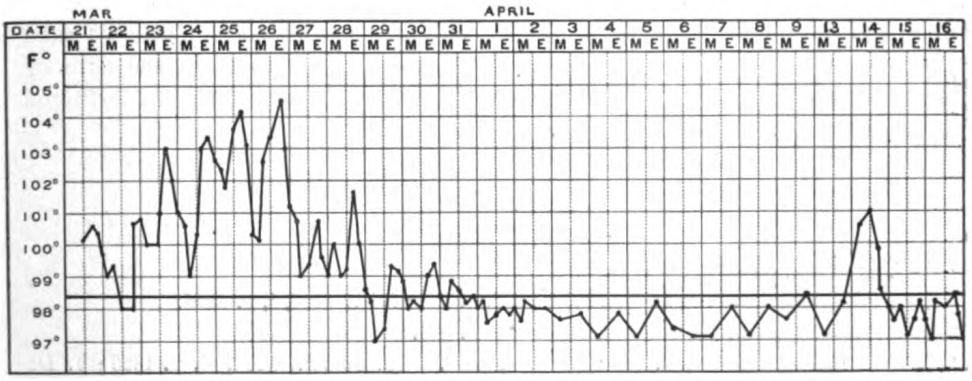
## Concurrent Scarlet Fever and Chicken-pox.

By J. D. ROLLESTON, M.D.

BOY, aged 8 years, exposed to chicken-pox three weeks previously, was admitted to Grove Fever Hospital for scarlet fever on March 21, on the third day of disease. Rash and throat typical. March 22: Varicella eruption. The photograph, taken on March 26, shows varicella almost confluent on face and trunk, but discrete on limbs, especially towards distal extremities; hands quite free; feet also free, except for a single vesicle on right foot. A photograph taken on March 29 showed desiccation of chicken-pox lesions and desquamation of trunk; subsequent desquamation was very profuse. On March 31 the skin of the palms and fingers separated almost entire. April 2: Thickly-set papular rash on face, trunk and limbs, unaccompanied by rise of temperature or other symptoms; it gradually faded in the next few days. April 14: Temperature normal since March 31; rose to 101° owing to cervical adenitis associated with albuminuria. April 19: Free from varicella scabs. April 29: Von Pirquet negative. Discharged in good health on May 14, with numerous pigmented scars.



Concurrent scarlet fever and chicken-pox ; fifth day of chicken-pox, eighth day of scarlet fever.




Temperature chart of case of concurrent scarlet fever and chicken-pox.

Dr. J. D. ROLLESTON said that a recent discussion on the association of scarlet fever and varicella at the Société de Pédiatrie of Paris [1] had induced him to show the photographs and temperature chart of this case. The association of scarlet fever with varicella was not uncommon. Since 1899 an average of 88 cases of co-existent scarlet fever and chicken-pox had been admitted annually to the Metropolitan Asylums Board fever hospitals, but in the majority of such cases the patient was incubating the second disease during the eruptive period of the first; it was exceptional for the two eruptions to be in full bloom at the same time, as in the present case. Before asserting the co-existence of the two exanthemata one must exclude the possibility of accidental scarlatiniform rashes being mistaken for scarlet fever. The autonomous existence of scarlet fever in this case was established by the very profuse desquamation which followed—a phenomenon which is not met with after accidental rashes [2]—and by the characteristic late adenitis. Dr. Rolleston alluded to another case of co-existent scarlet fever and varicella recorded by him, remarkable for the occurrence of palpebral gangrene, in which the same complication of late adenitis occurred.[3] It should be noted that accidental rashes, first of an erythematous and later of a papular type, did occur in the present case, but they were post-eruptive in relation to the scarlatinal rash. Such accidental rashes were most frequently met with when varicella was associated with some other acute exanthem. The association of scarlet fever with varicella tended to make the latter more severe, as was shown by a more abundant eruption, a greater tendency for the lesions to suppurate, and by a higher temperature and more prolonged pyrexia than was found in uncomplicated chicken-pox. Among the few cases of confluent varicella on record, three at least had occurred in convalescence from scarlet fever.[4] Dr. Rolleston drew special attention to the mild character of the present case, which compared favourably with one which he had reported some years ago,[5] in which the varicella eruption appeared eight days after the subsidence of the scarlatinal pyrexia. In that case the varicella eruption assumed the distribution of confluent smallpox, was accompanied by a temperature of 104° F. for several days, and was followed by secondary fever of ten days' duration, due to the formation of multiple cutaneous abscesses. The favourable course of the present case could be attributed, in part at least, to the soothing effect upon the skin of boracic baths which were employed every morning and evening for a fortnight after the appearance of the varicella.

[1] *Bull. de la Soc. de Péd.*, 1909, xi, p. 301.

[2] J. D. Rolleston. *Brit. Med. Journ.*, 1905, i, p. 233; *ibid.*, 1907, i, p. 1051.

[3] *Idem. Med. Chron.*, Manchester, 1909, xix, p. 215.

[4] Neech. *Lancet*, 1906, i, p. 515; Phillips, *Brit. Med. Journ.*, 1895, ii, p. 1355; J. D. Rolleston, *Brit. Journ. Child. Dis.*, 1906, iii, p. 21.

[5] J. D. Rolleston, *ibid.*

## Chronic Tetany.

By G. A. SUTHERLAND, M.D.

M. R. W., FEMALE, aged 3½ years. Seven months ago intermittent attacks of tetany occurred, following prolonged indigestion and abdominal pain. When seen a month later the abdomen was very distended and tender, and a fluid thrill was present. Tetany of typical character, no facial irritability, slight laryngeal stridor on crying. Rapid disappearance of all symptoms under rest and aperients. Recurrence in August, with extreme pain and tenderness in hands and feet. Facial irritability marked at times, no laryngeal stridor. Abdomen usually distended, some fæcal accumulation felt at times. Rectal examination negative. Von Pirquet's test negative. No signs of active rickets.

### DISCUSSION.

Dr. SUTHERLAND added that Dr. Langmead had described a form of dilatation of the colon associated with tetany, but he (Dr. Sutherland) could not make out any dilatation of the colon in this case. On the previous day the child had a bismuth meal, but on examination that morning there was scarcely a trace of bismuth left, which showed that there was probably not much dilatation present. He did not know whether the thyroid gland had anything to do with it. The German view that there was in those cases a spasmophilic diathesis did not appeal to him, because in rickets tetany was such a common condition and was rapidly cured. The Germans said they found the mothers of patients with tetany sometimes showed facial irritability, and if that were found largely it would support the idea of there being a diathesis present. The treatment had been to keep the bowels open and give proper food. There was now only slight spasm of the wrists.

Dr. LANGMEAD said he was inclined to put the case into the group which he had described, and which he did not find had been previously mentioned, though he had looked in the literature, including that of Vienna, where tetany was rife. He could now remember eleven cases and he had described three. There seemed to be three chief features of the condition: (1) Obstinate tetany; (2) dilatation of the large intestines; (3) the presence of foul, offensive motions. The tetany occurred at an older age than usual and was relapsing. In one case it occurred six times in two years, and at each appearance it was associated with offensive motions. Mere dilatation of the colon was not sufficient, there must also be putrefying fæces. As long as the motions were healthy there was no tetany, but when the motions became offensive the tetany recurred. The first two or three cases he saw were fatal, and every case which had been operated upon died. He showed photographs of the condition.

The PRESIDENT suggested that the title should be "recurrent" rather than "chronic" tetany, unless it could be said that in the intervening periods there were additional signs such as Erb's sign and Trousseau's phenomenon. Possibly there were more factors than one in the production of tetany, just as Dr. Langmead suggested in his type of case, and the toxin which set it up was not necessarily always the same. He had known similar cases in which the attacks had occurred up to the fifth year of age, and were always associated with gastro-intestinal disturbance. He did not think anyone was justified in these cases in operating on the colon.

Dr. SUTHERLAND, in reply, said he was interested in Dr. Langmead's remarks, because he wanted to know how the cases of chronic dilatation were to be diagnosed during life. In this patient there was dilatation of the gastro-intestinal tract, but he was not prepared to state which part was affected. He thought all parts were dilated, and that it was a toxæmia from that cause. He had not an opportunity of testing the question of heredity, because he had not seen the mother. He believed some people got wonderful results from lime salts in these cases, and also in rickets, but personally he had never found lime salts were of any special value. He would be glad to substitute "recurrent" for "chronic" in the title.

## Idiopathic Hypertrophic Dilatation of the Colon.

By J. B. MOLONY, M.B., and H. D. ROLLESTON, M.D.

MALE, aged 3 years, born at full term. When eight days old had severe bilious vomiting, then remained well, though thin, till he was weaned at sixteen months; then became subject to bouts of constipation lasting four or five days, with progressive abdominal distension. Medicine or enemas brought away large quantities of hard fæces and flatus. Later, although purgatives were taken daily, the bowels did not respond unless enemas were given; the appetite was ravenous, but the child became very thin. There have been five or six attacks of specially obstinate constipation accompanied by bilious vomiting, which has never been stercoraceous. There have been numerous attacks of tympanitic distension without vomiting, which are relieved by the expulsion of wind.

When admitted, during a minor attack of this kind, the boy showed very great tympanitic distension of the abdomen with upward displacement of the heart and lungs. Peristaltic waves may be observed passing along the course of the colon from right to left; as the wave progresses a V-shaped eminence, with its apex upwards, is seen to rise between the

recti. A wave has also been observed to pass from left to right in the left hypochondrium and epigastrium, resembling that seen in hypertrophic stenosis of the pylorus, but probably due to displacement of the descending colon, as in a figure given in a paper by Mr. Warrington Haward and one of us.[1] This condition might conceivably give rise to difficulty in diagnosis. The patient, who is poorly nourished (weight, 1 st. 10 lb.), is cheerful and does not show any signs of pain when

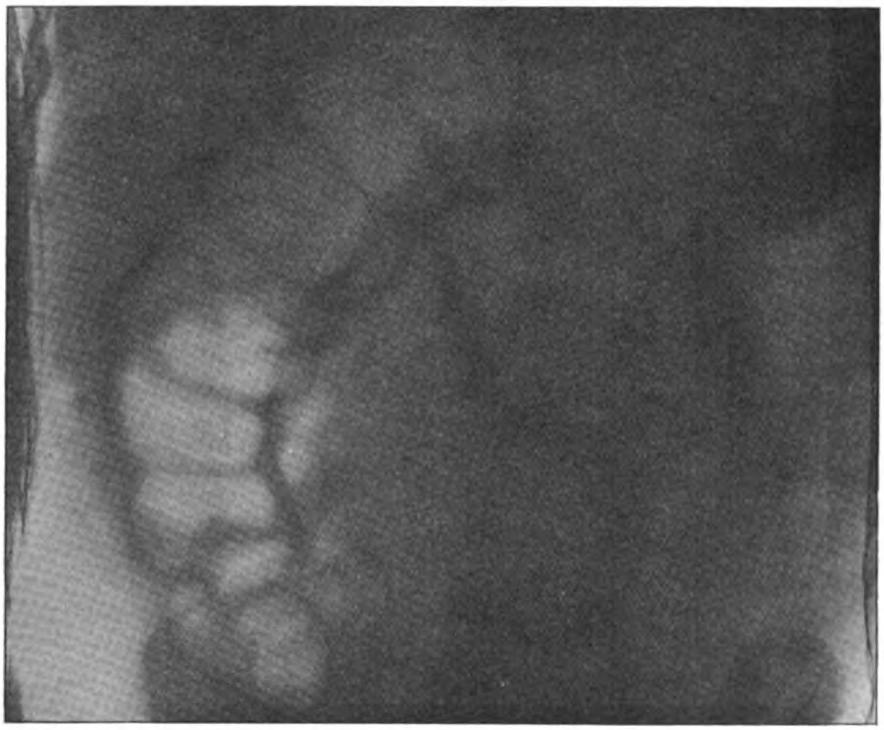


FIG. 1.

Skiagram from front immediately after bismuth meal. Some bismuth seen in left hypochondriac region.

vigorous peristalsis is going on. No clubbing of the fingers; no tetany. The urine contains indican, but not in large quantities. The distension varies, and, after a long tube has been passed, the abdomen may appear almost natural. The mother's relations are said to be markedly constipated; there are two other children, both in good health. We are much

[1] Haward and Rolleston, *Trans. Clin. Soc. Lond.* 1896, xxix, p. 203.

indebted to Dr. Allpress Simmons for his skiagraphic report, which shows delay of bismuth in the cæcum, a most remarkable position of the rectum and part of the sigmoid flexure, and well-marked hypertrophy of the walls of the sigmoid flexure:—

"Two drams of bismuth carbonate in 3 oz. of milk were administered to the child on October 19, 1910, and screen examination immediately

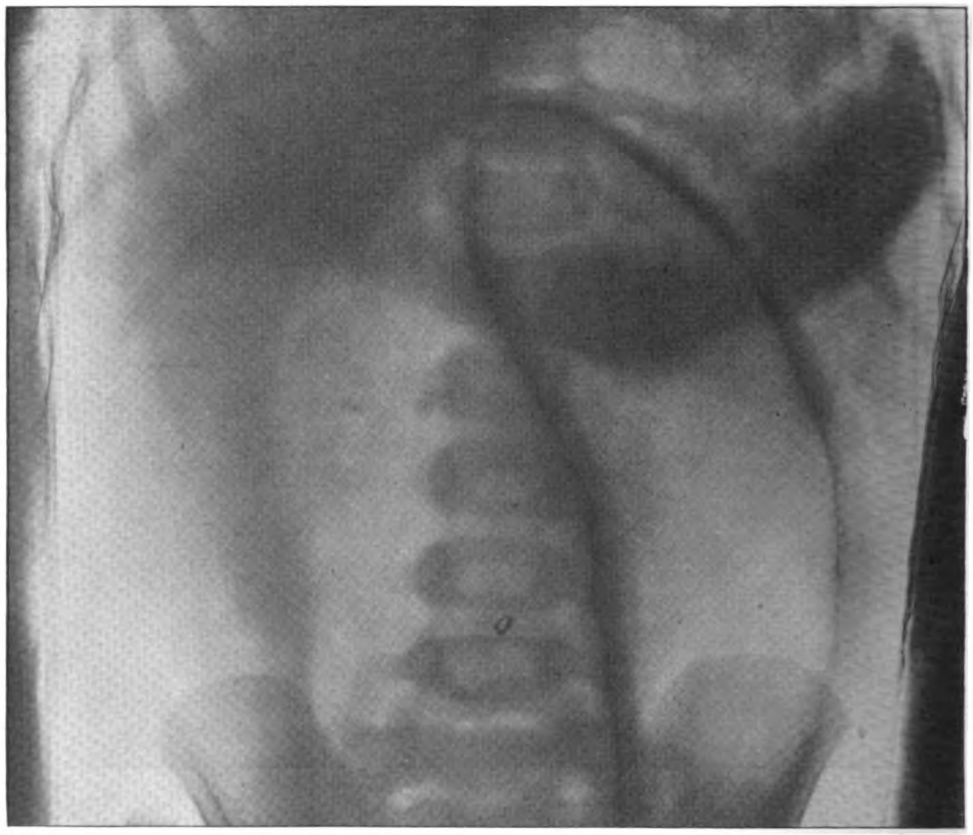


FIG. 2.

Skiagram from front three hours after bismuth meal. Bismuth seen in (presumably) ascending and transverse colon. To the right the hypertrophied walls of the dilated sigmoid flexure are well shown.

afterwards showed that the whole of the bismuth was high up under the left diaphragm (fig. 1), thus proving that the abdominal distension was not due to dilatation of the stomach. A skiagram from the front was taken three and a half hours later, and showed that the bismuth was lining the walls of an enormously distended bowel, extending vertically on the

FIG. 3.

Skiagram from front twenty-four hours after bismuth meal, india-rubber tube containing flexible wire having been first passed into rectum as far as it would go; some bismuth seen in cæcum.

extreme right of the abdomen, and that there was a transverse viscus of normal calibre across the upper part of the abdomen also containing bismuth (fig. 2). These appeared to be the ascending and transverse colons respectively. The inference is that the stomach and small intestines had passed their contents on with at least normal rapidity. A skiagram taken from the front twenty-four hours after bismuth had been taken showed some small amount of bismuth in the right iliac region and none elsewhere. After this skiagram was taken an india-rubber tube, with soft metal wire in it, was passed into the anus, and a length of about 8 in. passed freely, without obstacle, into the bowel. A skiagram taken from the front (fig. 3) shows that the tube extends vertically "upwards through the abdomen as far as the diaphragm, suggesting that the central distended gut, as seen on skiagrams, is rectum."

## DISCUSSION.

The PRESIDENT said such cases were difficult to understand, and the skiagram did not interpret them very clearly. The ordinary type of the disease was one in which an enlarged loop of sigmoid extended as far as the right hypochondrium. The skiagrams shown supported the view that the present case was of that type. He thought it was a suitable case for treatment by appendicostomy. Washing out the colon daily might cause it to contract.

Mr. LOCKHART MUMMERY said that three years ago he collected all the cases that had been recorded—just over one hundred—and found that these patients did not all die young. Most of them were children under 2 years of age, and he found that by taking five-year or ten-year periods there were a decreasing number up to the age of 85—the age of the oldest he found. Dr. Hale White suggested that there were two types—the acquired condition, found in elderly people, and the congenital condition, such as was seen in this case. His own investigation showed that this was not the case; that the cases in elderly people were those which had persisted, and that cases were more common as infancy was reached. No one had ever explained the cause. He had been unable to find a reasonable theory which would fit the cases. The neuromuscular idea was untenable, because the colon was six times as thick as normal, and it contracted like a uterus in labour. The condition was not dilatation of the colon only, but hypertrophy and dilatation. The only explanation seemed to be that there was some twist, owing to an abnormality of the meso-colon, which tended periodically to block the bowel. The only treatment which would cure the cases was wide resection of the entire dilated portion of the colon. It was not merely resection of an ordinary normal colon, but resecting a colon which was six to ten times larger than normal. The operation was a serious one, but the results had been shown by statistics to be very good, whereas colotomy had been fatal; out of sixteen cases of colotomy, the

records of which he had collected, fourteen died a few days after the operation; out of twenty cases that had been resected, only three or four had died. Resection of the colon would not necessarily cure the condition; there were two cases—one of Mr. Makins's and one in America—in which a year after resection the colon had become re-dilated to its original capacity. It was again excised, and dilatation again recurred. He had done appendicostomy in one case—that of a man aged 23. The whole colon was affected, and the sigmoid flexure was 9 in. in diameter. At the operation he examined the colon with his fingers and found it very thick and excessively muscular, with longitudinal bands 1½ in. across. The appendicostomy was done to keep the sac washed out. That was three years ago, and there had been no obstruction since. When he last heard of the man there was no appreciable diminution in the size of the colon. It was a safe operation, and if it failed to do good, at any rate no harm was done. He did not think it would cure the dilatation in the present case.

## Congenital Insufficiency of Soft Palate.

By LEONARD GUTHRIE, M.D.

PATIENT is a girl aged 9 years. From birth until the age of 5 years fluids regurgitated through the nares unless the child swallowed very slowly. There has been no regurgitation for four years. Speech has always been defective. She tried to talk, but was unintelligible until she was five years old.

Present condition: There is marked rhinolalia. The voice has the nasal quality typical of paralysis of the soft palate. The soft palate is normal in appearance, but is motionless on phonation and on stimulation. The electrical reactions have not yet been taken. The case is believed to be one of congenital muscular insufficiency of the soft palate rather than of submucous cleft palate.

### DISCUSSION.

Dr. GUTHRIE added that the soft palate was paralysed, but he thought the condition was not due to a nervous lesion but one of absence of development of the palatal muscles, which was akin to the condition sometimes seen in which infants had congenital ptosis or congenital absence of both external recti. Another class of case somewhat similar was that called submucous cleft. In such cases the palate looked fairly normal—i.e., there was no breach of continuity of the mucous surface, but there was a notch in the hard palate,

and the palate did not look so normal as in the present case. He did not know a case on record similar to the present.

Dr. SUTHERLAND regarded Dr. Guthrie's explanation as very probable, but did not consider the palate was very different in appearance from an ordinary palate of the same age. The uvula was well developed, and if there had been defective growth in the palatal muscles the part would have been atrophic.

Dr. GUTHRIE, in reply, said the soft palate looked normal, except that it was somewhat flatter than usual. He had not been able to palpate it nor to take the electrical reactions because the child was very nervous and intolerant of examination.

## "Congenital Elephantiasis" of the Arm.

By C. T. DENT, M.C.

CHILD, aged 4 months. The affection is congenital—a condition such as has been described as "congenital elephantiasis." The affection is principally of the lymphatic tissue, and there is, no doubt, extensive lymphangiectasis, so that the condition is allied to cystic hygroma. There is also superficial nævus with largely-dilated vessels extending above the upper limit of the main swelling, so that there is an associated condition of cavernous angioma. The bones appear normal in a skiagram, but, no doubt, are already longer than in the corresponding limb. The excessive weight of the limb is the chief source of trouble. Ligature of the main vessels has been proposed in such cases, but does not appear likely to do any good. The choice in any active surgical treatment appears to lie between lymphangioplasty and amputation, but amputation would have to be interscapulo-thoracic, and could not be advised in so young a child, while the benefits of lymphangioplasty seem questionable.

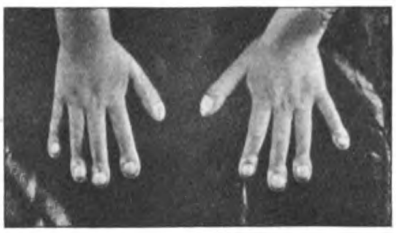
Dr. F. PARKES WEBER said he supposed such cases were due to a congenital abnormality of the blood-vessels, and possibly also of the lymph-vessels which supplied the affected limb. He would be glad to know what congenital abnormality of vessels caused the condition. Could it, for instance, be a stenosis of the main venous channels due to some kind of intra-uterine disease?

"Congenital elephantiasis" of the arm.

## Case of Congenital Heart Disease.

By P. G. Lee.

The patient is a rather under-developed child, aged 7 years. Soon after birth a considerable amount of blueness of the skin was noticed, particularly in cold weather. This has continued, with cyanosis on exertion; otherwise the child is in good health. The clubbing of the fingers and toes is very marked, more so than in any previous case I have seen. As regards the pathological state of the heart, it is not easy to define the lesions exactly, but it would seem as if there were two special deformities: (1) a deficiency in the ventricular septum, and (2) a patent ductus arteriosus. There is no increased area of dullness, showing



Marked clubbing of fingers in congenital heart disease.

hypertrophy. A loud murmur is evident, systolic in time, with the point of maximum intensity at the mid-sternum or slightly at the left side. This would point to a ventricular deficiency in the septum. There is, however, another murmur, also systolic in time, which can be heard loudly transmitted along the course of the arterial trunks; this would seem to point to a patent ductus arteriosus. There is no dyspnœa or cough.

I send these notes as of some value in the study of these congenital cardiac cases, and to show to what a considerable period life may be prolonged under most adverse conditions.

# Section for the Study of Disease in Children.

November 25, 1910.

Dr. E. CAUTLEY, President of the Section, in the Chair.

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## Morphœa in Band Form in a Girl aged 7 Years.

By J. L. BUNCH, M.D.

SOME three years ago the child fell off some railings, and, in addition to other trivial injuries, slightly bruised the right side of her forehead, without cutting the skin. The bruise soon disappeared, and no scar of any kind was left. Two or three months afterwards a pink patch made its appearance over the inner angle of the right orbit, about the size of a shilling, but not definitely raised above the surrounding skin. This patch soon lost its reddish tint and faded to a whitish shade; it also increased somewhat in size.

When brought to the Queen's Hospital for Children there was a lesion, nearly 1 in. long by ½ in. in width, situated directly above the right supra-orbital notch, with its long axis vertical, white in colour, very slightly depressed below the surrounding healthy skin, firm and somewhat hard to the touch, and encircled with a faint pinkish zone which was made up of minute capillaries. The lower edge of the lesion was situated at a distance of ½ in. from the supra-orbital notch, but a fainter, indefinite prolongation of the lower extremity could be made out, extending almost to the notch. In the course of the next six months, during which the child attended regularly, this lower prolongation became even more defined, and the patch also extended upwards on to the forehead, the upper advancing edge always showing a pink zone of minute capillaries. Soon the patch reached the margin of the hairy scalp and gradually spread back over this, causing distension of the hair follicles and loss of hair in its track. The skin first involved became firmer in texture, harder and more sclerodermic in consistence, more depressed below the surface, and more noticeable. The lesion was strictly confined to the distribution of the right supra-orbital nerve.

The lesion has gradually extended until there is now a white, scar-like patch extending from the right orbit backwards into the scalp for some 4 in., with a maximum width of 1 in., dead white in colour, depressed below the surface, apparently firmly attached to the underlying bone, hard and fibrous in texture, with, in places, a pinkish edge. The skin is shrivelled and atrophic, and, where the scalp is involved, entirely free from hairs.

Within the last month or so a faint, narrow white line has made its appearance just to the right of the middle line of the nose, but the texture of the skin here does not yet seem to be markedly altered. Unless this can be accounted for by an aberrant branch of the supra-orbital, it would seem to point to an involvement of some lateral nasal branches of the superior maxillary, assuming that the lesion is primarily a nerve lesion. The child has at times complained of pain and pricking sensations in the area of the lesion.

The fact that the child is of the female sex is in accordance with the majority of hitherto recorded cases.

DISCUSSION.

Dr. BUNCH added that the patient had been under treatment three years, including almost every form of recognized treatment (pilocarpin, thyroid, constant current, &c.), except the injection of alcohol into the supra-orbital nerve. He had been unable to ascertain from those who had had the largest experience in this method of treatment that any trophic changes resulted from such injections, and would be glad if any member of the Section could inform him what trophic changes (anabolic or katabolic) took place in the area supplied by the injected nerve.

The PRESIDENT (Dr. E. Cautley) asked if the bruise was on the same side as the skin condition, and if the disease did not extend beyond the region supplied by the supra-orbital nerve.

Dr. BUNCH replied that the blow was on the same side as the morphœa, but did not wish to attach any great importance to what might be merely a coincidence. His statement as to the distribution of the condition agreeing with that of the supra-orbital nerve was based upon the opinions of competent anatomists and neurologists who had seen the case.

## Splenic Enlargement.

By E. CAUTLEY, M.D.

THE patient, a boy, aged 6 years, was one of a family of six living children, the others being strong and healthy. Twins died in infancy. There was no family history of tuberculosis or syphilis. He was admitted

into the Belgrave Hospital on November 2 for pain and swelling in the ankles of two days' duration, followed by pain in the knees. On examination the eyelids were found distinctly puffy and œdematous, especially on the right side. The feet were puffy on the dorsum, the ankles and feet blue and rather cold. There was neither pain nor swelling in the knees. The urine was normal. The spleen is considerably enlarged; the liver slightly so. The swelling went down quickly and the boy is practically well, though he does not look particularly healthy. The case was shown in order to elicit opinions as to the cause of the splenic enlargement and of the attack of pain and swelling.

## DISCUSSION.

Dr. CAUTLEY added that the patient's condition was diagnosed as rheumatism, but it was not rheumatic. Possibly it was an early case of splenic anæmia, or the splenic enlargement was due to former anæmia splenica infantum. The child did not appear, from the history, to have had an enlarged spleen in infancy. But some such cases got well, though the spleen remained large for a considerable time. Except that the child did not look healthy and there was definite leucopenia, there was little upon which to base a diagnosis of splenic anæmia.

Mr. MILNER BURGESS asked whether the child had had diphtheria or was likely to have had that disease.

Dr. J. WALTER CARR thought a definite opinion could not be given without knowing something more of the history, especially as to whether the enlargement was acute or chronic. If it had existed for a considerable time, the child might have suffered in earlier life from infantile splenic anæmia and recovered from it, although, as not uncommonly happened, the spleen was still relatively enlarged. Observation during the next few weeks or months would make the diagnosis much clearer.

Dr. G. A. SUTHERLAND said he understood that the von Pirquet test had not been tried. It was often extremely difficult to diagnose the disease at the basis of an enlarged spleen. The child had a distended abdomen, palpation showed that below the enlarged liver there was some thickening, and he thought tuberculous peritonitis was possibly present. It would explain the splenic condition. The chart showed the temperature to be slightly subnormal, but that was not against chronic tuberculous peritonitis. It would be well to try the von Pirquet reaction, because if it was negative the suggestion he had made would lack confirmation.

Dr. H. D. ROLLESTON said that, in spite of the absence of any evidence of syphilis, it might be worth while to have Wassermann's test tried. If this was negative it was conceivable, since there had been arthritic symptoms, that the case was allied to the cases of rheumatoid arthritis, accompanied by enlargement of the spleen and lymphatic glands, though at present it was in a very incomplete form.

Dr. CAUTLEY, in reply, said there was no history of sore throat, nor, as far as could be ascertained, of any infection. There were five other children in the family, strong and healthy, and the mother had had no miscarriages. Moreover, the boy had no scarring about the angles of the mouth or the anus. He did not attach much diagnostic importance to a large abdomen in a boy of six, but it was, as Dr. Sutherland said, suggestive of a tuberculous condition. The von Pirquet reaction would not be of much assistance—it was so common in children after two or three years of life. He would try to bring the child again in a year's time.

## Extensive Necrosis of the Lower Jaw.

By H. S. CLOGG, M.S.

G. T., A GIRL, aged 7½ years, was admitted into hospital at the end of September. Five days before admission the child complained of tooth-ache on the right side, and the following day the face became swollen. The swelling rapidly spread to the left side, the child became very ill, and could not take nourishment. The two lower central incisor teeth fell out the day before admission.

On admission there was considerable swelling of the lower face extending to the submaxillary regions. The tissues were very indurated. The mouth could be opened to ½ in. only. The teeth of the lower jaw were very loose, and some of them carious. There were large grey sloughs on the gum and mucosa of the lower lip, and a copious, thick, purulent discharge. The tongue was swollen, the tissues in the floor of the mouth indurated, and the alveolus exposed in the incisor region. Temperature 103° F., pulse 148, respirations 48.

Treatment: The loose and carious teeth were removed, and the mouth was irrigated with hydrogen-peroxide and carbolic-acid solutions. For the first two days there was little improvement, and, as the growth from the pus was a pure streptococcus, on the third day 10 c.c. of serum were given. This was followed in twenty-four hours by a very marked improvement. Four further injections of the serum were given on the fourth, seventh, eighth, and tenth days. Some improvement appeared to follow each injection, and by the tenth day the temperature was normal, the swelling much less, and the general state of the child very much better. The mouth could now be opened, showing the alveolus exposed for some considerable extent. The child has been in hospital seven weeks, and the sequestrum is still firmly attached.

DISCUSSION.

Dr. J. D. ROLLESTON suggested that the condition had followed ulcero-membranous stomatitis. It would be interesting to know if a smear was taken of the lesions in the acute stage, and whether Vincent's organisms were present. Mr. Clogg said there was considerable fœtor, and that would be suggestive of Vincent's stomatitis. He had seen such conditions in those convalescing from scarlet fever, and examination of the smear showed the characteristic organisms. Occasionally those cases of stomatitis were complicated by necrosis of the jaw, sometimes, as in a case recorded by Giliberti,[1] ending fatally. He had found the local application of methylene blue beneficial.

The PRESIDENT said he had seen only one such case, and that followed measles. The child had necrosis of the alveoli of both jaws: the alveolar processes came away, and all the permanent teeth were exposed. Eventually they fell out.

## A Case of Patent Ductus Arteriosus.

By T. R. WHIPHAM, M.D.

THE patient is a girl, aged 11 years, who has a history of palpitation and cardiac distress since infancy, being at times short of breath and cyanosed. Pulsation in the chest and neck was first noticed when she was 5 months old. There is no history of rheumatism or chorea.

The child is somewhat undersized, but presents, as a rule, a healthy appearance, and has no clubbing of the fingers. The heart's apex-beat is well outside the nipple-line, and shows a wavy impulse in the fifth and sixth interspaces, the actual apex being apparently in the fifth. The dullness of the heart and great vessels is increased considerably to the left, extending downwards in a slightly curved line from the junction of the inner and middle thirds of the clavicle to the apex. In the region of the apex the first sound is rather loud, and is followed by a blowing systolic murmur. Over a localized area in the pulmonary region there is a continuous thrill to be felt, and, on auscultation, a loud "churning" rumble can be heard extending through both systole and diastole. Immediately above this the rumble clears, and a soft systolic bruit is audible. The skiagram shows a considerable increase of the manubrial shadow to the left, and also an enlargement of the heart in the same direction; the total shadow being pyriform in outline and not showing the normal curves of the heart. There is no shadow suggestive of enlarged mediastinal glands, and none can be felt in other situations.

[1] *Le Pediatria*, 1907, p. 589.

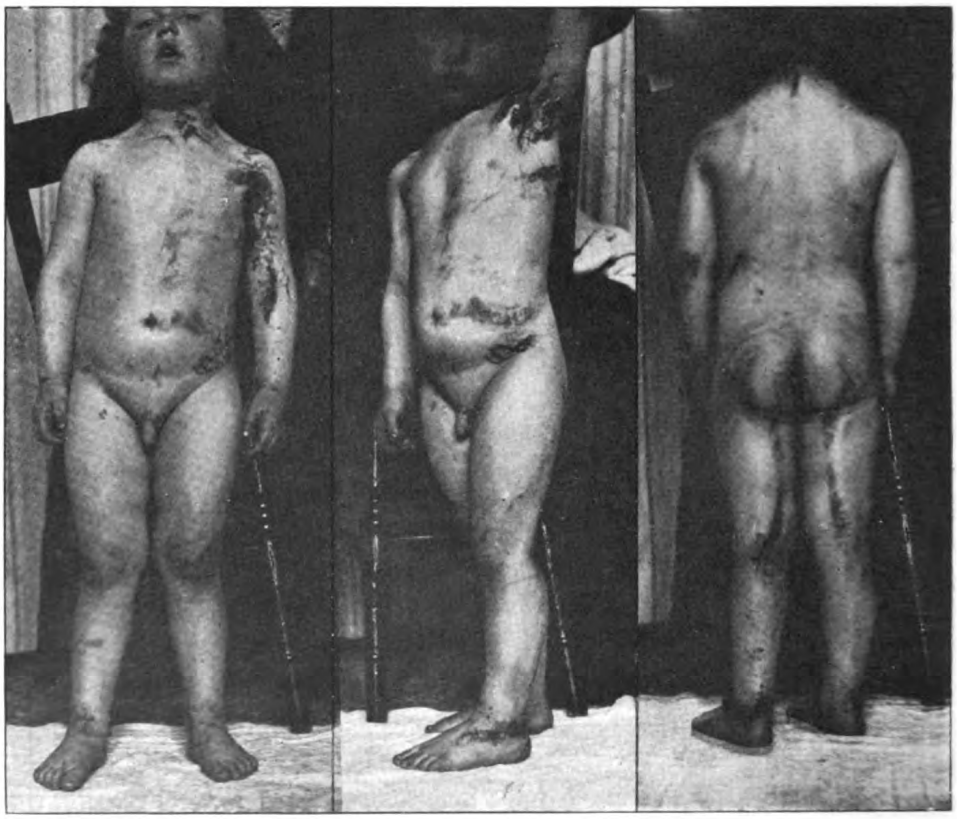
The liver is not enlarged. The diagnosis put forward is patent ductus arteriosus, with a deficient interventricular septum.

Dr. WHIPHAM added that this was the typical murmur described by Dr. G. A. Gibson as indicating patent ductus arteriosus.

## Nævus Verrucosus Linearis.

By F. PARKES WEBER, M.D.

THE patient, E.S., is a well-grown boy, aged 3½ years, of good general nutrition and normal mental development. The skin of his trunk, neck and extremities is largely affected with a condition of



Nævus verrucosus linearis.

pigmented and verrucose nævus, the distribution of which in lines and patches is typically "segmental" or "zoniform"—that is to say, resembling the distribution of herpes zoster. Particularly noteworthy

are some zoster-shaped bands on the left side of the trunk, the extensive involvement of the left axilla, left side of the neck and left arm, and a stripe passing from the buttock downwards along the middle of the posterior aspect of each thigh. The left half of the body is the one chiefly affected, and, according to the mother, the abnormality of the skin first began to show itself when the child was seven months old. The general distribution of the affection can be well seen by means of the accompanying illustrations. The health of the child is good.

DISCUSSION.

Dr. PARKES WEBER added that a number of other terms were used for the condition, but he chose the one which he regarded as most convenient. (Amongst other terms sometimes employed were "nævus neuroticus," "ichthyosis hystrix linearis," and "papilloma neuroticum.")

The PRESIDENT said he thought the name "ichthyosis herpetiformis" was more appropriate. It was sometimes called "Biett's bands."

## Congenital Transposition of Viscera.

By F. PARKES WEBER, M.D.

P. F., AGED 10 years, a healthy-looking though perhaps rather delicate girl, was found by ordinary physical examination to have dextrocardia, and this was confirmed by a subsequent skiagram of the thorax made in August, 1910. The liver dullness is on the left side, so that the child probably has transposition of all the abdominal as well as of the thoracic viscera. She is not left-handed. The child's mother and two brothers, who were examined at the German Hospital, showed no transposition of viscera. The abnormality in the cardiac position is apparently in the present case not accompanied by any valvular or other disease of the heart.

Dr. PARKES WEBER added that since he last saw the child she had developed a systolic murmur at the base of the heart of uncertain significance.

## A Case of Rheumatoid Arthritis.

By FREDERICK LANGMEAD, M.D.

THE patient is a boy, aged 13 years. His illness began in September, 1908, when he caught a cold and was feverish, but did not lie up. About fourteen days later the hands swelled, and afterwards the

ankles and knees. Pain and swelling recurred in the joints from time to time, and became definitely worse at the beginning of July, 1909, when he first attended Paddington Green Children's Hospital. On admission there on July 19, 1909, his wrist, elbows, knee, and ankles were greatly swollen and tender, and he could walk only with great pain and difficulty. There was evident fluid in the right knee. The swellings of the wrist were fusiform and largely extra-articular. He remained in the hospital for ten days only, during which time the temperature varied from normal to 99·6 F.; the pulse-rate ranged between 88 and 128 per minute, being usually about 120. Von Pirquet's test was employed at this time and gave a negative result.

He was admitted again in November, 1909, still suffering from an irregular fever, ranging from 97·5° F. to 99·8 F. The same joints were affected as before, and, in addition, there was definite implication of the hips, and several of the metacarpo-phalangeal and proximal inter-phalangeal joints were attacked. The nature of the joint disease was characteristically that of rheumatoid arthritis, the enlargement being fusiform and most of the effusion extra-articular. No coarse crepitus was obtainable, but soft synovial creaking in the right hip and knees. Skiagrams demonstrated the absence of bony change. The pulse-rate still remained about 120 per minute. The spleen could not be felt, but three or four glands the size of filberts were felt in each axilla. They were movable and free from tenderness. The heart was unaffected. At this time he was kept absolutely at rest in bed, and treated by administration of guaiacol carbonate and iodide of potassium, under which he appeared to improve slightly, but no alteration occurred in his temperature. An attempt to withdraw fluid from the extra-articular swelling on the back of the right wrist proved unsuccessful.

On January 22, 1910, he was transferred to Sir Almroth Wright's ward at St. Mary's for vaccine treatment, where the nature of the infection was investigated by Dr. Armstrong, in co-operation with Dr. Fleming. I am indebted to the former for the following brief summary of a very arduous piece of work—(1) Fæces were planted out on McConkey's medium and eight different coliform organisms isolated. The patient's opsonic index was tested on each, and they were all found practically normal. (2) Cultures were taken on agar, serum-agar, and blood-agar from the throat, nose, and alveolus, which was the site of a localized pyorrhœa. From these, seven more or less distinct organisms were isolated, and his index taken to each. These indices were all practically normal except in the case of No. 3, which was a streptococcus.

Bier's bandage was now applied to the wrist for thirty minutes, and the blood tested before and after, with results as follows:—

| | |
|---|---|
| Before bandage index was ... ... ... ... | 0·39 |
| One hour after it was ... ... ... ... | 0·35 |
| Seven hours after it was ... ... ... ... | 0·55 |
| Twenty-four hours after it was ... ... ... | 0·33 |

It was decided to repeat the experiment, using massage instead of Bier's method. The results then were as follows:—

| | |
|---|---|
| Before ... ... ... ... ... ... | 0·76 |
| After ... ... ... ... ... ... | 0·77 |
| Seven hours after ... ... ... ... ... | 0·90 |
| Twenty-four hours after ... ... ... ... | 0·62 |

A vaccine was prepared on the strength of this not very satisfactory indication, and doses of from 5 to 50 millions were administered. It was, however, found impossible to raise the index above the normal. At the end of three months the temperature was as bad as ever, but the arthritis had improved.

It should be added that the tooth from around which pus was oozing was extracted, and soon after the pyorrhœa ceased; but this made no difference to the fever. It cannot be said that vaccine therapy had any specific effect on the condition. The gradual diminution in the size of the joints was explicable on the ground that he was kept in bed for the greater part of the three months during which he was being inoculated. On March 4 one of the enlarged glands in the right axilla was removed, and microscopically showed chronic inflammatory changes merely, and no tubercle bacilli. The gland proved sterile on attempted cultivation.

Since his discharge from the ward on April 13 he has again been attending the out-patient department, and has been treated by thyroid extract, preceded by three weeks balneo-therapy and massage, tan baths being employed. The result of the baths has been to increase his freedom of movement, and improvement has been rapid since thyroid was first given. All effusion has gone excepting a slight fullness at the back of the right wrist, and the movements in all the joints are practically normal, except in the hips, where considerable fixation has resulted, causing a cramped gait. The temperature, as far as I can determine, is normal, and has been so on each occasion on which it has been taken during the last six months; but there has been no opportunity of obtaining a daily record since he left the wards. The pulse-rate is also normal, and the general health greatly improved. The mother has been suffering from myxœdema for the last fifteen years, since the age of 40.

### Remarks.

The point of chief interest in the case is the relatively rapid improvement under treatment by thyroid extract. R. Llewellyn Jones mentions similar striking improvement in some cases of the disease under this treatment. The relationship of the thyroid gland to rheumatoid arthritis is one worthy of consideration. Slight but definite enlargement of the gland is not uncommon. Kent Spender also pointed out an association between rheumatoid arthritis and Graves's disease, as shown by the many features which are common to both, such as tachycardia, similar pigmentary changes, and localized swellings and œdema. R. Llewellyn Jones recorded fourteen examples of the occurrence in the same patient of these two diseases, and six others in which the associated Graves's disease was incomplete. In two cases the Graves's disease preceded the joint affection; in the majority it was apparently contemporaneous, and in a few the rheumatoid arthritis appeared first. Exophthalmos and tremor, either separately or together, have often been noticed in rheumatoid arthritis; and Still, in the description of the type which bears his name, mentions an occasional prominence of the eyeballs in that condition, unassociated, however, with enlargement of the thyroid gland. Both Spender and Llewellyn Jones record the occurrence of cases of rheumatoid arthritis and Graves's disease in different members of the same family. Others who have drawn attention to the connexion between the two diseases are Macalister, Cohen, Spriggs, Symes, Diamantberger, and Weil. Another connecting link between the thyroid gland and rheumatoid arthritis is found in the study of tetany. The relationship of tetany to the thyroid gland is fully recognized, and cramp-like attacks closely resembling tetany are common in rheumatoid arthritis, especially in the early stages before the development of the characteristic joint lesions. Moreover, both are ascribed to a toxæmia of obscure origin, and in each case there is a great deal of evidence to indicate the alimentary tract as the source of the toxin. If this be the correct explanation, the presence of associated disorders of thyroid activity can be readily explained on the hypothesis put forward by Combe, who regards the ductless glands, especially the thyroid, as the third line of defence against auto-intoxication.

Myxœdema accompanied rheumatoid arthritis in a case described by Macalister, and both disorders greatly improved when thyroid was administered.

It appears therefore that myxœdema, simple enlargement of the thyroid, and the larval and complete forms of Graves's disease may each accompany rheumatoid arthritis. A tempting explanation is that the toxins which produce rheumatoid arthritis are in part counteracted by increased activity of the thyroid gland. An activity which may not be apparent may show itself only by a visible hyperplasia, or may proceed to actual hyperthyroidism or Graves's disease. It was on this conjecture that thyroid extract was given to the patient shown to-day. His mother was myxœdematous at the time the child was born, and an inherited latent hypothyroidism, or, in other words, the inheritance of a thyroid unsuited for any unusual call on its activity, seemed probable. The effect of the treatment favours this view.

## DISCUSSION.

Dr. PORTER PARKINSON said one point was as to whether such cases would clear up. The present one had cleared up very satisfactorily. Two years ago he showed a severe case before the Society which was now perfectly well, and had remained so for eighteen months. He had not tried thyroid for the condition, and none of the remedies he used seemed to have any particular influence on the disease. The drug which acted best in reducing temperature and pain was salicylate of soda. He had not seen much good from various sera.

Mr. MILNER BURGESS said he had had a case in which every joint was involved, and now nearly every joint was ankylosed.

Dr. GARROD asked what was the age of the child, and how long after the commencement the improvement was manifested. Was it so long after the vaccine treatment that a remote influence could be excluded?

Dr. H. D. ROLLESTON said that it would be interesting to hear if there was any evidence, as shown by the opsonic index or otherwise, of tuberculosis. This case might be regarded as an incomplete example of the form of rheumatoid arthritis described by Dr. Still; and it had been suggested by Dr. Weber and others that Still's disease was a tuberculous manifestation. Various tuberculous affections were benefited by thyroid extract, and the improvement in this instance might possibly be thus explained. As bearing on the occurrence of tuberculous arthritis in the subjects of hypothyroidism he referred to a case of peculiar affection of the joints shown in 1901 by Dr. H. Thursfield,[1] which was reported on by a sub-committee as one of hypothyroidism, divergent views being expressed as to the nature of the joint disease. Subsequently the patient was in St. George's Hospital with tuberculous disease of the elbow (one of the joints originally affected) and tubercle bacilli were found in the discharge from the joint.

[1] *Trans. Clin. Soc.*, Lond., 1901, xxxiv, p. 233.

Dr. WHIPHAM asked if, in order for a case to be Still's disease, enlargement of the lymphatic glands and spleen was necessary. He had seen one or two cases with enlargements of joints characteristic of the disease, but without enlargement of the spleen or lymphatic glands. He congratulated Dr. Langmead on his success in the case. One case which he (Dr. Whipham) showed before the Society for the Study of Disease in Children a few years ago was given salicylates for the relief of pain at first, and then ionic medication with iodine. The result was very satisfactory.

Dr. E. I. SPRIGGS said he thought a comparative study of the cases which had been published led to the conclusion that the enlargement of the spleen depended on two things: the acuteness of the disease and the age of the patient. If the disease was acute or subacute, the spleen became enlarged in young people more often than in adults, as was the case in some other infections or toxæmias. He agreed with Dr. Parkinson that many of those cases got practically well, if the definition of Dr. Pye-Smith were accepted that "practically well" meant, in practice, not quite well.

Dr. LANGMEAD, in reply, said the patient was discharged from Sir Almroth Wright's ward four months before the thyroid treatment was started. He had never given much thyroid: 1 gr. three times a day was the largest dose. The improvement coincided with the administration of the thyroid, but the immediate improvement he attributed also to the tan baths which were used at first. He did not recognize Still's disease as a separate clinical entity, but regarded it as rheumatoid arthritis in children. He thought its special clinical features were modifications produced by age, and did not constitute a particular kind of disease. There was no reaction to the von Pirquet test. The opsonic index was estimated for tubercle while the patient was in the ward, and was not in favour of the diagnosis of tubercle.

## A Case of Malformation of the Heart.

By FREDERICK LANGMEAD, M.D.

THE patient is a boy, aged 8 months, who was brought to the hospital first, when one month old, because of dyspnœic attacks and attacks of collapse, which came on when he was bathed. He is well nourished, but markedly cyanosed. Breathing is sometimes noisy, especially during sleep, and the mouth is kept open, this apparently being due to adenoids. There is no appreciable clubbing of the digits. Examination of the chest shows that the cardiac dullness is increased to the left, reaching about $1\frac{1}{2}$ in. outside the left vertical nipple-line. No dullness can be made out to the right of the sternum. A definite systolic bruit can be heard all over the chest, both front and back, and

is especially loud behind the sternum and along the left sternal margin; its maximum intensity is at the xiphisternal junction, just to the left of the midsternal line. It is accompanied by a thrill.

The father is aged 39 and the mother 29, both healthy, and the exhibitor has not been able to obtain any history of malformation in former generations. The patient is the second child, the first being deformed and stillborn.

DISCUSSION.

The PRESIDENT considered that there was a large perforated septum, and possibly transposition of the aorta and pulmonary artery, or the aorta arose in part from the right ventricle. He also thought the heart was enlarged to the right.

Dr. HIGGS said that in his experience of cases of patent septum the murmur was always heard at the back, whereas it was not in cases of pulmonary stenosis. In this case he could not hear any murmur at the back. He thought the presence of a marked thrill and the fact he had just mentioned suggested the diagnosis of pulmonary stenosis without patency of the interventricular septum.

## Old Healed Tuberculous Disease of Knee-joint, with Increase in Length of the Limb.

By O. L. ADDISON, F.R.C.S.

THE knee was first noticed to be swollen in July, 1906. Patient, a boy, was first brought for treatment in February, 1907, when the joint showed the usual signs of tuberculous infection, being hot, slightly tender, with much synovial thickening and great limitation of movement. Under treatment by splints, signs of active disease in the joint ceased by July, 1907. In March, 1908, patient was fitted with a Thomas's knee-splint, and allowed to get about: at this time a very slight amount of flexion was possible. In February, 1909, 45° movement could be obtained. Since March, 1910, patient has been walking about without any splint, and has had no sign of recurrence. At present the knee can be fully extended, and flexion is nearly as free as in the sound limb. The leg is 1 in. longer than the other, the femur and tibia being each ½ in. longer. X-rays taken from time to time have shown increased translucency of the tibial and femoral epiphyses, with some irregularity of outline.

Mr. LOCKHART MUMMERY said it was a case in which the growth of the epiphysis had been altered owing to the long period of inactivity of the limb. The child had been putting all its weight on one limb, while the other had not been used. He thought that in time the difference would again diminish. It would be interesting to see whether in three years there would be any improvement.

## Sarcoma of Femur.

By O. L. ADDISON, F.R.C.S.

PATIENT, female, aged 1½ years. Mother first noticed the swelling of the thigh two months ago, and does not think it has increased in size. There is a hard, painless swelling surrounding the right femur for practically its whole length; the mass is pear-shaped, with the larger end below. Some nodular projections are present on the posterior surface about half-way up the femur, otherwise the outline of the mass is smooth; it feels of uniform consistency, and there are no signs of inflammation.

A skiagram shows a pear-shaped swelling of regular density surrounding the shaft of the femur, commencing just above the epiphysial line and extending almost to the great trochanter. The growth does not appear to have penetrated the bone. The general condition of the child is fair. The liver and spleen can both be felt, and there are a few small glands present in the left groin.

## Interstitial Hernia.

By O. L. ADDISON, F.R.C.S.

PATIENT, aged 2 years, was operated on for right inguinal hernia in July, 1910. At that time there was said to be a swelling also in the left groin, but none was found during the child's stay in hospital; the left testicle was undescended. At present there is a hernia the size of a pigeon's egg above Poupart's ligament on the left side. The hernia is of the subcutaneous variety. The testicle can be felt in the inguinal canal and can be brought down to the external ring.

## A Case of Cardiolysis for Adherent Pericardium.

By G. A. SUTHERLAND, M.D.

S. K., AGED 6 years, was admitted to hospital in January, 1910, suffering from shortness of breath and pains in the arms and legs. He had enjoyed good health until four weeks previously, and heart trouble had never been suspected. There was marked bulging of the præcordial region and a heaving impulse over a large area. The right border of the heart extended 1 in. to the right of the sternum, and the apex was felt at the nipple-line. A double murmur was heard in the mitral area, the systolic part being of a musical quality and conducted well into the axilla. He was suffering from subacute rheumatism, and many rheumatic nodules were present in the extremities.

The boy became a chronic invalid from the heart affection, which was diagnosed as adherent pericardium, with dilatation and hypertrophy. In May last the transverse measurement of the heart was 6 in. and the antero-posterior diameter of the chest was 6½ in. On May 27 Mr. Clayton-Greene removed parts of the cartilages of the fourth, fifth, sixth, and seventh ribs at the sternal junction in order to allow more freedom of action of the heart. Since the operation the boy has had one severe attack of cardiac failure, with breathlessness, general œdema, and oliguria; but on the whole his condition is better than before operation. He is brighter, can get about more freely, and is much more active in his habits.

## Congenital Obliteration (or Congenital Atresia) of Bile-ducts, with Hepatic Cirrhosis.

By F. PARKES WEBER, M.D., and G. DORNER, M.D.

THE child, D. S., when admitted to the German Hospital on July 4, 1910, was aged 4 months, well formed and not emaciated (body-weight 11¼ lb. on July 5), but rather deeply jaundiced and showing considerable firm enlargement of both the liver and the spleen; the lower borders of these organs were about halfway between the costal margin and the umbilicus. At that time and until the child's death no bile entered the intestine, for the fæces ("acholic") were white

and free from urobilin (stercobilin), whereas the urine always contained bile and gave Gmelin's reaction for bilirubin, though (by the ordinary tests) it was always free from urobilin and urobilinogen. This would not have been the case had any bile been entering the intestine, since the evidence obtained from experimental work and from clinical and necropsy records is now quite sufficient to prove that when urobilin and urobilinogen are present in the urine, there must be some bile (whether from the liver or artificially introduced from without) entering the alimentary canal, whereas if urobilin and urobilinogen are always absent from the urine (and fæces), no bile can be finding its way into the alimentary canal.[1]

The history given was that the jaundice had been noticed *soon after* birth. We have no information in regard to the colour of the meconium and the early fæces. At birth the child seems to have had a bullous eruption, from which it recovered under medical treatment in the course of two months. No evidence was obtained of syphilis in the parents, who were both young, the patient being their first child. The absence of inherited syphilis in the case was further confirmed by Wassermann's sero-reaction, which was kindly tried (July, 1910) by Dr. H. R. Dean, at the Lister Institute, with negative result.

### Subsequent Course of the Case in the Hospital.

The case was at first under the care of Dr. Fürth, but later on, owing to his absence on a holiday, was kindly handed over by him to Dr. Weber. The general condition varied somewhat from time to time. Ordinarily, the child seemed free from pain and happy, and took her food. Occasionally there was slight fever. The urine was free from albumin until the end, when it contained a trace.

A blood-count made on July 15 gave the following results: Red cells, 6,080,000 in the cubic millimetre of blood; white cells, 8,700 in the cubic millimetre of blood; hæmoglobin, 122 per cent. The differential count of 500 white cells (which was kindly made by Dr. A. E. Boycott) gave: Neutrophile polymorphonuclears, 51·0 per cent.; lymphocytes, 39·4 per cent.; large hyalines, 5·0 per cent.; eosinophiles, 4·6 per cent. No mast cells were seen. The red cells appeared normal. The blood-serum obviously contained bile-pigment. It may be worth mentioning that the red blood-corpuscles, tested with regard to their resist-

[1] *See* Friedrich Müller, "Ueber Icterus," 1892; also A. E. Garrod and Gowland Hopkins, *Journ. of Physiol.*, Cambridge, 1896, xx, p. 112.

ance to hæmolysis (July 14), by being added to graduated hypotonic aqueous solutions of sodium choride, appeared to be rather less resistant to hæmolysis than the red corpuscles from healthy persons, though the resistance of the red corpuscles in cases of obstructive jaundice (both in adults and children) towards hypotonic saline solutions is often somewhat greater than in ordinary healthy subjects. In the present case very slight hæmolysis occurred when the washed red cells were added to an aqueous solution of 0·63 per cent. sodium chloride, and hæmolysis was complete with a solution of 0·45 per cent.; whereas, by the same method in normal blood, Dr. Dorner finds that hæmolysis usually only commences with a solution of about 0·45 per cent.

At the end of July the jaundice was very deep, and there was a dusky pigmentation of the skin in addition to the jaundice; there was some ascites; the child was not markedly emaciated, and took her food fairly well, though she sometimes vomited part of it out again. The body-weight at the end of August was 13½ lb. By the commencement of September the ascites had decidedly increased, and, on September 6, 350 c.c. of clear, bilious ascitic fluid was removed by paracentesis abdominis. The ascitic fluid was of specific gravity 1012, and contained rather more than 3 per mille albumin; it gave a negative reaction to Rivalta's test [1]—that is to say, a drop of the fluid, when allowed to fall into a glass containing very slightly acidified water did not produce a smoky-looking cloud like a drop of any inflammatory serous effusion invariably does. Afterwards the child had diarrhœa and vomiting. On September 8 the child looked rather emaciated, and there were slight bronchitic signs. In the evening she had fever (102° F.) and slight convulsions, and died at 9 p.m. (September 8), when a little over 6 months of age.

### Necropsy.

The *liver* (weight, 9 oz.) was of green colour, finely cirrhotic, and had a slightly granular surface, with a little patchy perihepatitic thickening of the capsule. The gall-bladder was found contracted (with thick walls) and containing only a little transparent, colourless, slimy fluid. The cystic duct, the distal part of the hepatic duct, and the common

[1] This test, to distinguish between inflammatory and passive serous effusions, was described by Rivalta in 1895. *See* F. Rivalta, *Riforma med.*, Napoli, 1895, xi, p. 242; also R. Lauter, *Compt. rend. hebd. de la Soc. de Biol.*, Paris, 1909, lxvii, pp. 223, 385, 827. In confirmation of Rivalta's conclusions we have found, as far as our observations go, that a drop of inflammatory effusion always gives rise to a smoky cloud.

bile-duct (choledochus) were represented by connective-tissue cords (*see* diagram); that representing the common bile-duct apparently disappeared altogether before it reached the duodenum. The proximal part of the hepatic duct (up to the site of obliteration of the channel) and its right and left trunks (coming respectively from the right and left lobes of the liver) were moderately dilated and contained green inspissated bile. The *pancreas* appeared normal and the opening of the pancreatic duct into the duodenum at the "biliary papilla" was apparently pervious; at all events, a fine probe could be passed from the duodenum into a duct opening at the "biliary papilla." The *brain* (weight, 20½ oz.) appeared normal, and its substance (and the cerebro-spinal fluid, we think) was not jaundiced. There was some broncho-

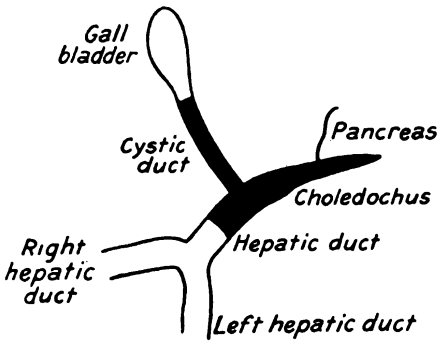



Diagram to show which of the extra-hepatic biliary ducts were represented by solid cords.

pneumonia. The heart (weight, 1 oz.) showed nothing of importance. There was no ascites. In regard to the alimentary canal, it may be remarked that the intestines seemed considerably too thick for the age of the child. The *spleen* (weight, 2½ oz.) was enlarged, of rather firm consistence, and there were patches of perisplenitic thickening of the capsule. The kidneys (weight, together, 2½ oz.), the suprarenal glands, and the thymus showed nothing special. The bone-marrow in the shaft of the right humerus, which was opened, was quite red. The mesenteric lymphatic glands were enlarged, and some of them reddish on section. There were many enlarged red lymphatic glands along the spinal column. No congenital malformations were found anywhere in the body except those described in connexion with the bile-ducts.

MICROSCOPICAL EXAMINATION.

The *liver* showed a uniform cirrhotic change of interlobular ("monolobular," better "unilobular") distribution, with considerable interlobular increase of biliary vessels. Many of these small bile-ducts in the connective tissue between the lobules, as well as many of the minute intralobular biliary channels, were plugged with inspissated bile. In fact, the microscopic picture was a typical one of so-called "biliary cirrhosis," such as has been experimentally produced, through ligature of bile-ducts in animals, by Charcot and Gombault [2], D. Gerhardt [3], D. Nasse [7], Vaughan Harley and Barratt [4], and others. A similar biliary cirrhotic change in the liver (though in a less typically unilobular form) has been sometimes found in necropsies on patients who have suffered from chronic obstructive jaundice due to gall-stones, &c.[1]

The *spleen* showed an increase in the thickness of the capsule and the fibrous trabeculæ—that is to say, an increase in the fibrous-supporting framework of the organ. The large size of the organ was doubtless partly due to increase of the pulp-tissue, which was decidedly in excess as compared with the lymph-adenoid tissue of which the Malpighian corpuscles are composed. Dr. J. C. G. Ledingham, whom we must here thank for his kindness in looking through most of the sections from the case with us, points out that a marked feature of the spleen is that there are a great number of plasma cells in the neighbourhood of the large trabeculæ and walls of the blood-vessels;[2] many of the plasma cells are being inclosed in the cytoplasm of phagocytic endothelial cells.

The sections of pancreas, kidney, heart-muscle, and intestine showed nothing special. The most interesting part of the microscopical examination was that of the extra-hepatic bile-ducts, and of the connective-tissue cords representing them.

Sections of the wall of the *gall-bladder* showed that it was thickened and that it was very rich in connective tissue and blood-vessels of a peculiar kind. These blood-vessels consisted almost entirely of endothelial cells, and reminded one of the embryonic type of blood-vessels met with so conspicuously in some forms of cutaneous nævus (hæman-

[1] For a review of this whole subject see F. Parkes Weber, "On Biliary Cirrhosis of the Liver, with and without Cholelithiasis," *Trans. Path. Soc. Lond.*, 1903, liv, pp. 103-35. This paper contains numerous references to the literature of the subject.

[2] Sections of the spleen from a previous case of "Congenital Obliteration of Bile-ducts," described by F. P. Weber, in *Proc. Roy. Soc. Med.*, 1909, ii (Child. Sect.), p. 231, were examined by Dr. Ledingham. He found there, likewise, "plasma cells in large numbers, arranged round the sheaths of the vessels or indiscriminately among the pulp-cells."

gioma hypertrophicum, hæmangio-endothelioma). Many of the vessels in question might be described as endothelial cells arranged in more or less thick columns, with empty channels. In some columns, indeed, there was no obvious lumen.

The microscopical examination of the *proximal portion of the hepatic bile-duct* (the portion which contained inspissated bile) disclosed a remarkable condition. The walls were very rich in connective tissue and in the "endothelial" type of young blood-vessels, which has just been described. The hepatic duct was lined by inspissated bile; no epithelial layer could be made out. But its lumen, in addition to the inspissated bile, contained a good deal of loose connective tissue, containing blood-vessels similar to the loose connective tissue which replaces a blood-clot in the interior of a blood-vessel when organization and vascularization of the thrombus have occurred. It seems probable that the plug of inspissated bile in the interior of the hepatic bile-duct in our present case has been dealt with by Nature in the same way in which Nature usually deals with a thrombus blocking a blood-vessel—namely, that it has been treated as a foreign body, and has been partially removed by a process of organization and vascularization.

Our sections of the *common bile-duct (choledochus)*, or, rather, of the connective-tissue cord which represented it, showed on microscopical examination no trace of any lumen at all. They merely showed connective tissue very rich in the "endothelial" or embryonic type of young blood-vessels, previously described. Quite possibly, therefore, the cord representing this part of the choledochus never had any channel at any time (*see* later on, under "Remarks"). It is worth mentioning also that in some of our microscopical sections of this region we cut across two veins of ordinary type, which showed patches of thickening and calcification of the elastic layer immediately external to their endothelial lining.

## Remarks.

The present case differs from the case of congenital obliteration of bile-ducts previously described by Dr. Weber (May, 1909) [12], in that in the previous case the obstruction to the entry of bile into the intestine was not always complete, whereas in the present case, as we have already pointed out, no bile could have entered the intestine whilst the child was in the hospital. Nevertheless, the patient in the present case lived to 6 months of age, one month longer than the first child did. In the present case it seems difficult to account for the supposed absence of jaundice at birth.

The chief points of interest are those connected with the examination of the extra-hepatic biliary channels. The almost complete absence of evidence of active inflammation, both in the pervious ducts and in the impervious ducts (or, rather, cords), makes it seem highly probable that the disease in the present case is to be regarded as primarily an error of development in the bile-ducts, with secondary biliary cirrhosis of the liver as a result of obstruction to the bile-flow. This corresponds with the views recently expressed both by R. S. Lavenson [6] and by John Thomson [9]. As already mentioned, it seems, indeed, in the present case quite likely that the connective-tissue cord representing part of the common bile-duct (choledochus) never contained a lumen at any time. This would fit in with the teaching that the bile-ducts are originally solid cords, "Remak's fibres," which subsequently become hollowed out to form channels. According to this view, the so-called congenital "obliteration" of bile-ducts would really be due not to obliteration, but to failure of formation of the lumen in some portion of the extra-hepatic biliary tract, and the condition, as Lavenson points out, would be better termed "congenital atresia" of bile-ducts [6].

Probably the only *operation* which could have been performed was the establishment of a biliary fistula, as suggested by M. Hirschberg [5] and J. Rotter,[1] by boring a hole (e.g., with a Paquelin's cautery) into the substance of the liver ("hepatostomy"), endeavouring in that way to drain away the bile by opening up one or more large intra-hepatic bile-ducts. This method was tried by Dr. Michels in the case of an adult with chronic jaundice due to primary carcinomatous obstruction at the junction of the two hepatic bile-ducts, and the case was described by him and Dr. Weber in the *Medico-Chirurgical Transactions* for 1905 [13]. But there is great difficulty in keeping a biliary fistula of this kind ("hepatostomy") open for a long time, and it is unlikely that the child in the present case would have benefited from such an operation. In regard to the question of operation in the rare cases of supposed congenital stenosis of bile-ducts in older children and adults, a real indication seems to be the presence of a distinct tumour (bile-retention cyst), accompanied by chronic obstructive jaundice (Victor Veau) [11]. An interesting case of obliteration of the common bile-duct (choledochus), acquired in early life, was that of a girl aged 19 who had suffered from obliterative jaundice for sixteen years before Sir F. Treves [10] performed the operation of cholecystenterostomy.

[1] *See* H. Scheuer, *Berl. klin. Wochenschr.*, 1902, xxxix, p. 138.

In regard to *diagnosis*, cases of ordinary "icterus neonatorum" can be recognized by the early clearing up of the jaundice, whereas in the present class of cases the jaundice gradually deepens, although the degree of jaundice in some cases varies from time to time. Cases of what may be termed "familial icterus gravis neonatorum,"[1] which have been shown not to be connected with congenital obliteration of bile-ducts and are apparently not necessarily connected with sepsis or inherited syphilis, have to be distinguished. Their pathology is still imperfectly known, but they have been shown not to be connected with congenital obliteration of bile-ducts, and, though the spleen is probably generally enlarged, the liver shows no constant changes, and the fæces are not always, if ever, "acholic." Moreover, in some of these there has been "Kernicterus" of the brain, and it is possible that the cerebro-spinal fluid, obtained by lumbar puncture, would contain bile-pigment, which it does not contain in most jaundice cases.[2]

Infective jaundice in newly-born children, connected with umbilical phlebitis, &c., may be distinguished by the local and constitutional signs of infection. The "pericellular" (better "intralobular" or "intercellular") hepatic cirrhosis of inherited syphilis is not usually accompanied by jaundice, but cases of jaundice in children, apparently due to syphilitic stenosis of bile-ducts, have been recorded by Beck [1] and H. D. Rolleston [8]. From such syphilitic cases the cases of congenital obliteration of bile-ducts (like our present one) may be distinguished by the absence of the ordinary signs of inherited syphilis and by a negative Wassermann's sero-reaction for syphilis (the reaction was negative in our present case).

The gradual deepening of the jaundice in cases of congenital obliteration of bile-ducts, the enlargement of the liver as well as of the spleen, and (above all) the definite clinical evidence that the jaundice is obstructive, distinguish these cases from cases of congenital acholuric (so-called "hæmolytic") jaundice with splenomegaly.[3]

[1] *See* especially J. Pfannenstiel, "Ueber den habituellen Ikterus gravis der Neugeborenen," *Münch. med. Wochenschr.*, 1908, lv, p. 2169, and Nahm's paper on the same subject, *ibid.*, 1909, lvi, p. 139; see also H. D. Rolleston, "Recurring Jaundice in Four Successive Pregnancies and Fatal Jaundice in Three Successive Infants," *Brit. Med. Journ.*, 1910, i, p. 864. Pfannenstiel and Rolleston give references to several published series of cases which fall into the group of "familial icterus gravis neonatorum."

[2] See, however, an exception to this rule in the case of an adult recorded by Mosny and A. Javal, *Bull. de la Soc. méd. des Hóp. de Par.*, 1909, 3rd series, xxviii, p. 280.

[3] For the literature on this subject see F. P. Weber and G. Dorner, "Four Cases of Congenital Acholuric Jaundice in one Family," *Lancet*, Lond., 1910, i, pp. 227-32.

In regard to *further investigation* on the subject of so-called "congenital obliteration" of bile-ducts, what is chiefly needed is obviously very careful microscopical examination in all cases of the bile-ducts, and the connective-tissue cords representing the bile-ducts, especially in the neighbourhood of the termination of the lumen. Information of this kind would likewise be very valuable in the rare cases of chronic obstructive jaundice supposed to be due to stenosis of the choledochus, of congenital origin, or dating from the first years of life.[1]

REFERENCES.

[1] BECK. *Prager med. Wochenschr.*, 1884, ix, pp. 257, 266, 284. See also the references to the literature of the subject given by LAVENSON, loc. cit.
[2] CHARCOT et GOMBAULT. *Arch. de Physiol.*, Par., 1876, 2nd series, iii, p. 272.
[3] GERHARDT, D. *Arch. f. exp. Path. u. Pharm.*, Leipz., 1892, xxx, p. 1.
[4] HARLEY, VAUGHAN, and BARRATT, W. *Journ. of Path. and Bact.*, Edin. and Lond., 1901, vii, p. 203.
[5] HIRSCHBERG, M. "Die Behandlung schwerer Lebererkrankungen durch die Anlegung einer Leber-Gallengangsfistel," *Berl. Klin.*, 1902, xv, part 172.
[6] LAVENSON, R. S. *Proc. Path. Soc. of Philad.*, 1907, and *Journ. Med. Research*, Boston, 1908, xviii, p. 61.
[7] NASSE, D. *Arch. f. klin. Chir.*, Berl., 1894, xlviii, p. 885.
[8] ROLLESTON, H. D. *Brit. Med. Journ.*, 1907, ii, p. 947.
[9] THOMSON, JOHN. Allbutt and Rolleston's "System of Medicine," 2nd ed., 1908, iv, part 1, pp. 103-8.
[10] TREVES. *Practitioner*, Lond., 1899, lxii, p. 18.
[11] VEAU, VICTOR. *Bull. de la Soc. de Péd. de Par.*, 1910, xii, p. 289.
[12] WEBER, F. P. *Proc. Roy. Soc. Med.*, 1909, ii (Child. Sect.), p. 231.
[13] WEBER and MICHELS. *Med.-Chir. Trans.*, Lond., 1905, lxxxviii, p. 247.

## DISCUSSION.

The PRESIDENT said a very great authority on the subject was present (Dr. H. D. Rolleston), and it would be interesting to hear whether he still held the view that it was a descending cholangitis rather than a developmental error, or whether he thought some cases were due to cholangitis and some to errors of development.

Dr. H. D. ROLLESTON said that cases of obliteration of the bile-ducts in very early life might undoubtedly be due to different causes. Thus, in rare instances, it was due to syphilitic disease of the common duct, and in cases without any cirrhosis of the liver it might result from constriction by bands caused by intra-uterine peritonitis. But in the usual cases in which there was hepatic cirrhosis he believed that the pathological sequence of events was cirrhosis with a descending cholangitis which led to obliteration of the common

[1] See the papers by Treves and by Veau, already referred to, loc. cit.

bile-duct. He put forward the following arguments against the view, sustained by Lavenson and Dr. Parkes Weber, that there was primarily atresia or absence of canalization of the solid diverticulum from the duodenum which formed the common bile-duct, and that the cirrhosis was secondary to the obstruction: (*a*) It was improbable that this failure in the process of canalization should so commonly involve the lower portion of the future common bile-duct, and should leave the other, and especially the intra-hepatic, ducts intact. (*b*) That if there really was an absence of canalization of the hepatic diverticulum, the liver would be unable to develop so far as it did in these cases, and that it would probably become cystic—an event which hardly ever occurred in these cases. (*c*) The existence of a group of cases in infants in which there is cirrhosis of exactly the same character, but without any obstruction in the bile-ducts, was much against the contention that the cirrhosis was secondary to the obstruction of the ducts.

Dr. GARROD agreed with Dr. Rolleston's remarks. He thought the atresia of the bile-ducts was probably of like origin with those malformations of the alimentary canal in which a portion of the intestines was replaced by a band, or in which there was a complete interruption of the intestine. Both these conditions were more probably results of intra-uterine disease than malformations in a strict sense.

Mr. LOCKHART MUMMERY said there were certain cases of atresia of the intestine, and he remembered two cases in which both the small and large intestine were interrupted by portions in which there was a fibrous band. In one the intestine ended blindly in the middle of the pelvis, which must have been a congenital defect. The combination of atresia and a blind extremity was in favour of the former being a congenital lesion.

Dr. PARKES WEBER replied that some of the cases might be due to inflammatory changes in the bile-ducts and others not. Similarly, he thought that some cases of congenital cardiac valvular disease were due to intra-uterine endocarditis; others were results of "simple" malformation. Granting that the liver and bile-ducts were originally formed as a hollow outgrowth from the alimentary tube, it was yet conceivable that occasionally a developmental "error" might take place—namely, that part of the "neck" of the hollow diverticulum might close up without inflammation and disappear, as the primitive duct normally did disappear in the case of the thyroid gland. The liver would thus be converted, by a "mistake of development," into a ductless gland, like the thyroid. The liver in the case before the meeting was actually a ductless gland.

# Section for the Study of Disease in Children.

January 27, 1911.

Dr. E. CAUTLEY, President of the Section, in the Chair.

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## Intermittent Word-blindness (Congenital).

By ERIC PRITCHARD, M.D.

THE patient is aged 8½ years. He is very intelligent, particularly dexterous in the finer motor mechanisms. Vision is normal, hearing good; he has one brother and one sister, both of whom are normal. The family history is unimportant. His teachers have noticed that he is particularly slow at learning to read, although he is quick at mental arithmetic, and finds no difficulty in reading Arabic numerals. He can easily recognize such words as "cat," "dog," "hen," "fat," "likes," "away," when spelt aloud, but, as a rule, is quite unable to recognize the same words when written. Some days, according to the statements of two of his teachers, he can read simple sentences quite well, though on the days on which I have examined him he has been quite unable to distinguish even single letters. He can write well from dictation, and can copy written words accurately, although he does not understand their meaning unless he repeats slowly to himself the letters of which they are composed, or performs slowly the manual movements necessary for writing the same letters. That is to say, though his visual memories for words and letters are defective, his auditory and kinæsthetic memories are good. The intermittent character of the word-blindness is suggestive that the condition is a psychosis rather than one due to an inherent structural fault in the visual word-centre.

## Idioglossia.

By Eric Pritchard, M.D.

The patient is a girl aged 9½ years. Her birth was three months premature, and she has always been very delicate. Her mother's half-brother by the same father was a deaf mute. The child was noticed to be late in commencing to talk, and she was quite 2 years old before her speech was in any way intelligible. At school she is considered a bright child, writes particularly well, and her composition is excellent. Her mental condition is normal, her hearing slightly defective, and when tired there is some want of attention. The speech is typically idioglossic. The vowel-sounds A, E, I, O are correctly pronounced, although A is pronounced in Cockney-wise as Aye, or I. C, D, T, G are all pronounced similarly as Nee; H is pronounced as Hay, J as Nai, P as Mee, S as Ai, V as Mew, W as Nummennew, X as Ai, and Z as Ney.

### DISCUSSION.

The President (Dr. E. Cautley) said it was difficult to regard so-called congenital word-blindness as a mere psychosis. The present case was unusual in that the patient on some days could concentrate his attention sufficiently to recognize words and sentences, but on other days he could not do so. Many of the cases exhibited the defect throughout life, though they might be highly intelligent. Indeed, an excellent surgeon was said to have been word-blind till death. In the case of idioglossia, he thought the outlook was fairly good. Such patients usually learned normal language if they were properly taught. Cases were met with in the more leisured classes. In one boy of a large and intelligent family no one except a sister could understand what he said; yet this boy eventually spoke quite well.

Dr. G. de B. Turtle said he had known a patient similar to the present one; he was the last member of a family of six, and his age was now 14. His speech was unintelligible to all but his elder brother, who was the interpreter. He had now acquired a fair amount of normal language. He asked whether such cases had been followed up, and if so, did they tend to get well if left without special education?

Dr. Pritchard replied that he had never been able to follow up a case of idioglossia for any time. The present child had improved during the last five years, and had learned musical sounds, as well as speech.

## Specimen from a Case of Necrosis of the Lower Jaw.[1]

By H. S. CLOGG, M.S.

THE child from whom the specimen was removed was shown at the Section on November 25, 1910. She was then 7½ years old, and was admitted into hospital suffering from an acute infection of the mouth resulting in necrosis of the lower jaw. Under local treatment and the injection of antistreptococcal serum the acuteness of the inflammation subsided. When shown at the last meeting of the Section the greater part of the alveolus was exposed and dead. Shortly after this an abscess formed near the angle of the jaw on the right side; this was incised. A few days later an abscess formed on the left side, and was similarly treated. It soon became evident that the whole thickness of the body of the jaw was necrosed, and it was decided to remove the dead portion, although it did not appear to be loose. An examination under anæsthesia revealed that practically the whole body and ascending ramus on the right side were necrosed. In order to facilitate the removal of the dead portion through the mouth, the body of the bone was cut through on either side and removed. The right ascending ramus was removed in its entirety with the condyloid process. The necrosis was less extensive on the left side and involved merely the outer portion of the ascending ramus. The specimen consists, therefore, of the whole of the lower jaw, except the inner shell of the ascending ramus, and condyloid process on the left side. It is now about five weeks since the dead bone was removed, and in the place of the jaw there is a firm, solid arch, but whether this is bone or not I cannot say.

### DISCUSSION.

Mr. MILNER BURGESS asked whether Mr. Clogg had seen many of these cases. He had seen one, at the Evelina Hospital, under the late Mr. Morrant Baker. There was profuse hæmorrhage, from which the patient died, and he would like to know whether there was troublesome hæmorrhage in this case.

Mr. CLOGG replied that he had seen nothing so extensive as in the present case. The hæmorrhage was fairly free, but was easily controlled by pressure. The process had been going on for seven or eight weeks before the operation

[1] Shown at the last meeting, *see* p. 30.

was done, and probably the inferior dental artery was thrombosed. A dental surgeon would try to do something to limit deformity when the present wound was healed up.

## A Case of Enlargement of the Liver.

By T. R. WHIPHAM, M.D.

THE patient is a boy, aged 9, who was brought to the Prince of Wales's Hospital in the middle of December with a history of having been "out of sorts" for about a month. His appetite had been capricious and he was said to have become a little thinner. For a short time previously he had also been slightly jaundiced. He had had no pain or vomiting, no rigors, and no urticaria; in fact, no marked symptoms of any kind. Neither had it been noticed that his abdomen was enlarged. When first seen the patient was a fairly healthy looking boy with a good colour, though slightly jaundiced, and did not look at all ill. On examination the abdomen was found to be enlarged owing to the enormous size of the liver, which reached to the anterior superior spine of the ilium and as far forward as the umbilicus in the middle line. Above this the edge could be traced upwards to a deep notch, to the left of which was a large left lobe under the left costal margin. The epigastric angle was occupied by a large, rounded swelling, which appeared to rise from the surface of the liver. There did not appear to be any enlargement upwards, the superior limit of the dullness being at the normal level. The surface of the liver and of the epigastric prominence was smooth and firm, though the swelling was perhaps a little more elastic on pressure than the rest of the organ. The spleen was just palpable below the ribs. There was no evidence of ascites. The chest was perfectly normal, and there were no enlarged glands to be felt anywhere. The boy presented no external signs of inherited syphilis, but there was a history of the mother having had three miscarriages.

The boy has been under observation for the last five weeks, and during that time there has been no change in his condition, except that he now shows no definite sign of jaundice and the spleen cannot be felt. His general health has not deteriorated, and his temperature has been normal. A blood-count shows an eosinophilia of 7·8 per cent., but no other marked changes.

## DISCUSSION.

The PRESIDENT agreed that the exhibitor's diagnosis was a likely one, but his own view was that the upper tumour was the liver itself, and the lower tumour was independent of the liver. He regarded it as a hypernephroma, with, possibly, a secondary new growth in the liver. The elasticity of the swelling in the epigastrium was not of much importance. There was often a similar elasticity over solid tumours in the abdomen. The abdomen should be explored and the lower tumour removed, if it was hypernephroma.

Dr. PORTER PARKINSON said he had only made one casual examination, but his view supported Dr. Whipham's. Probably the upper tumour was one of the liver, and most likely it was hydatid; not a malignant growth, on account of the healthy appearance of the patient and the fact that there had been no loss of weight. In malignant tumours of the liver there was early cachexia. Below, he thought, was the liver, as it had a sharp edge. But it was very hard—almost cartilaginous. If it was hydatid, there would probably be more than one tumour, the second partly growing out of the first, almost like an exogenous hydatid cyst. He had not had experience of malignant tumours of the liver in children of that age.

Dr. WALTER CARR agreed that probably the only way to arrive at a certain diagnosis in the case would be to open the abdomen; but meantime he would, with Dr. Whipham and Dr. Parkinson, place hydatid first among the possibilities, especially having regard to the eosinophilia which was present. The patient's condition did not seem to have altered much in nine months, whereas a malignant growth would probably have progressed rapidly in that time. He had not come across, in connexion with congenital syphilis, such a liver as in the present case. What could be felt was, he thought, the edge of a large, thickened liver, and it was very hard. He could not say whether there were secondary changes in the liver substance from inflammation spreading from the hydatid, but it raised the question as to whether there were two hydatid cysts, or whether there was some condition of the liver independent of the swelling in the epigastrium. An exploration would entail but little risk.

Dr. G. A. SUTHERLAND thought hydatid the most probable diagnosis, in view of the history. The whole swelling seemed to be due to enlargement of the liver, and his first idea had been that it was a case of gummata of the liver. The surface of the liver had numerous irregularities on it, and if it was hydatid disease there were probably several cysts. He thought he could distinctly feel the spleen. In the absence of the Wassermann reaction, he agreed that an exploration should be done.

Dr. WHIPHAM replied that he much regretted the report of a Wassermann reaction had not yet been received,[1] but he did not regard the case as

[1] The Wassermann reaction proved to be negative.

congenital syphilis. There were no signs of it apart from the liver. There was a history of three miscarriages, and one baby had died at three months. These occurred before the present child was born. He had intended having the abdomen opened, but preferred to have the opinions of members first; and he would report at the next meeting the result of the laparotomy. There was distinct jaundice when first seen, and there was still a little visible.

## Embolism of the Central Artery of the Retina in a Girl aged 11¾ Years.

By SYDNEY STEPHENSON, F.R.C.S.

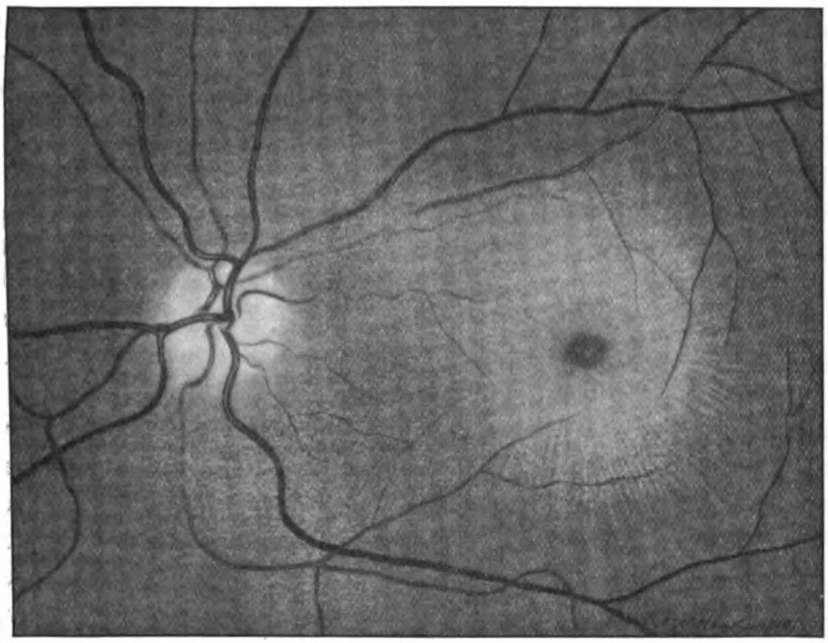
I. B., AGED 11¾ years, attended the eye department of the Queen's Hospital for Children on December 15, 1910, with the complaint that she had lost the sight of one eye.

Family history: Mother healthy. Father suffers from asthma. Patient is one of ten children born alive, of whom four only survive, the remaining six having died in infancy from "wasting." One of the patient's siblings is affected with tuberculosis. There have been three miscarriages.

Personal history: Patient had measles at 6 years of age, and scarlet fever four years later. Although there is no history of rheumatism, the child has suffered from pains in the legs. During the past year she has occasionally complained of giddiness and frontal headache. On December 8 last she experienced some slight pain over the left eye, and on awaking next morning she found that the sight of that eye had gone. She at once mentioned the fact to her mother, who could see nothing wrong with the eye. It is to be noted that the eyes had never given any trouble before that.

On admission: Right vision = $\frac{5}{6}$; left vision = no p.l. Pupils equal. The left pupil has little, if any, direct action to light, but, on the other hand, its indirect response to light is greater than that of the other pupil. When light from an ophthalmoscopic mirror is thrown into the eyes the reflex from the right eye has its normal orange colour, while that from the left is palish. The right fundus is normal. The left fundus shows the ophthalmoscopic picture characteristic of so-called "embolism of the central artery of the retina"—namely, filiform retinal

arteries—œdema in and around the yellow spot region, together with a red spot at the fovea centralis. The optic disk is blurred by the surrounding œdema (*see* fig.). As regards the general condition, the following notes were made: Heart not enlarged; a slight systolic murmur was to be heard. The reflexes were normal, save that the left knee-jerk appeared to be slightly plus. Examination of chest proved to be negative. No evidence of inherited syphilis. The urine, specific gravity 1014, was faintly acid, showed a few flat epithelial cells, but no casts, and was free



Embolism of the central artery of the retina.

from albumin, sugar, and blood. No micro-organisms could be grown from the blood.

Progress (December 22, 1910): The optic disk is now white and badly defined at upper and lower border; it is not, however, swollen. The retinal veins are perhaps somewhat smaller than those of the right eye. There can be no doubt that the retinal arteries are smaller than normal and than those in the right eye. The œdema noted as present in the central region of the fundus on December 15 is less marked. The central red spot can still be recognized, especially by the indirect method

of ophthalmoscopic examination. When digital pressure is made upon the globe, the inferior artery pulsates with great readiness, but no pulsation can be made out in the superior artery. The indirect action of the left pupil to light is good, but its direct action is very slight. Left vision, no p.l.

January 12, 1911: Left vision, no p.l. Reaction of left pupil to light sluggish. The optic disk is white. The retinal vessels are still somewhat attenuated. The contrast between the fovea centralis and the surrounding fundus is not now particularly pronounced. The Wassermann reaction is negative.

January 13, 1911: For the following careful note regarding the patient's cardio-vascular system I am indebted to my colleague at the Queen's Hospital, Dr. Sydney A. Owen: Patient lying down—Some diffuse pulsation at root of neck, but no undue venous distension. The maximum heart's apex-beat best seen and felt in the fourth space immediately beneath the nipple ($2\frac{3}{4}$ in. from mid-sternal line). The impulse is more diffuse than is normal for a child of her age, and is slightly more forcible than natural. Slight epigastric pulsation. The right limit of the cardiac dullness is at the right edge of the sternum; the upper at third rib; and the left obliquely a little outside nipple. On auscultation at the apex the first sound is shortened, sharper than natural, and accompanied by a low-pitched systolic bruit, faintly conducted to the axilla. The second cardiac sound is a little accentuated. An imperfectly reduplicated sound at the pulmonary base. The second sound is natural at the aortic base. The heart's action is regular. Pulse, 112; soft, fair volume, tension low, with slight Corrigan character. Blood-pressure (obliterating pressure) 120 mm. Hg. Vessels, no thickening. Patient sitting up—The apex-beat (maximum) is now seen and felt just external to the nipple. The systolic murmur is less audible. Both lying and sitting, the systolic bruit, although heard best in full inspiration, can be heard also during full expiration. The murmur cannot be heard in the back. There are no signs of auricular enlargement as evidenced by signs of pressure on the left apex. Ewart's auricular dullness is natural. In the left lateral position the heart shifts normally, and the forcible character of the impulse is best appreciated. The carotids show no difference on the two sides. The splenic dullness is well marked. Slight irregular fever; no nodules. *Diagnosis: Mitral regurgitation with slight dilatation and associated hypertrophy of the left ventricle. There is no positive evidence of mitral*

*stenosis. The right heart is slightly enlarged. The condition appears to be progressive. No evidence of infarction elsewhere.*

January 19, 1911: The left eye has now recovered enough sight to distinguish between light and dark. The œdema has practically disappeared, the retinal arteries are rather small, and the optic disk is atrophic.

## Two Cases of Infantilism.

By KENNETH KELLIE, M.B.

*Case I.*—F. S., female, aged 4 years; weight, 17 lb. 2 oz.; height, 29½ in.; circumference of abdomen at level of umbilicus, 19 in. Cannot walk, but can stand. Talks and recognizes people. Parents healthy; two other children healthy; one child died of wasting (?), one child born dead. Child has never been breast-fed. For the last year has had anything to eat. Had measles a year ago. On admission to the Belgrave Hospital last August the child weighed 10 lb. 13 oz.; the abdomen was large, 16½ in., and the veins on the surface were very conspicuous. The limbs were extremely wasted. A suspicion of tuberculous peritonitis was entertained. There was no reaction either to the injection of tuberculin or to von Pirquet's test. The temperature has been usually normal. The stools have been always large and greasy. For the last month the child has been treated with pancreatin and seems to have improved.

*Case II.*—H. S., male, aged 3¼ years, came to my out-patients' department on January 13 for wasting. It is a twin; the other died a year ago. Two elder children healthy; no miscarriages. (The mother has a child, aged 5 months, apparently healthy; height, 25½ in.) Weighed at birth 5 lb. He weighs 16 lb. Circumference of head, 16½ in.; height, 28 in.; twelve teeth. Motions very frequent (four to five a day), more or less foul and slimy. A localized systolic murmur over the fourth left interspace. The child recognizes things and plays, but can only speak a few words. He can stand when held, but cannot walk.

## DISCUSSION.

Dr. ERIC PRITCHARD asked whether the iodoform test had been applied to the first of the cases. He thought the diagnosis could be clinched rapidly by administering keratin-coated pearls of iodoform and testing how soon that keratin was dissolved. If it was not dissolved one could conclude with almost certainty that it was not pancreatic infantilism.

Dr. WALTER CARR thought the second case was merely a backward child, which had had a bad start in life; its weight at birth was only 5 lb., and it had probably been badly fed ever since. It might make up for lost time later. The first case was more difficult of explanation. At first it looked like a chronic tuberculous peritonitis, but that idea could scarcely be maintained in view of the negative results of the tests; the bones did not show rachitic changes. It might be merely a chronic gastro-enteritis in a badly fed child, leading to distension of the intestines and to consequent weakening of the abdominal muscles. He did not know whether there was any definite lesion of the pancreas.

Dr. PORTER PARKINSON hoped that the test mentioned by Dr. Pritchard would be done, to decide whether there was pancreatic deficiency. In regard to the second case, he re-echoed what Dr. Carr said, as he had come to the same conclusion, and thought the cause was that there was a chronic endarteritis or colitis; the child had had diarrhœa all its life, and had probably been improperly fed.

Dr. J. D. ROLLESTON suggested the possibility of inherited syphilis in the ætiology. That was supported by the fact that one child died of "wasting" and one child was born dead. The Wassermann reaction should be tried. He supposed the cases must be classified under what the French termed "quinary" inherited syphilis (*hérédo-syphilis quintaire*).[1] In support of syphilis also was the vaulted palate in one case, which might be dissociated from any skin or bone lesion.

Dr. LANGMEAD raised the question, in regard to the first case, whether one could distinguish between intestinal and pancreatic infantilism. Some time ago, Bramwell described pancreatic infantilism, and more recently Herter, of Chicago, had described six cases of infantilism with intestinal disturbance, in which he did not mention the pancreas at all. He (Herter) ascribed the condition to the persistence of organisms, the *Bacillus infantilis* and the *Bacillus bifidus*, which were normally in the bowel in infancy, and should afterwards be replaced by others.

[1] *Vide* E. Fournier, "Recherches et diagnostic de l'hérédo-syphilis tardive," Paris, 1907; and P. Rostaine, "De la syphilis acquise chez les hérédo-syphilitiques," *Thèses de Paris*, 1904-5, p. 299.

The PRESIDENT thought the cases were justly termed symptomatic infantilism; but one should distinguish between symptomatic and true infantilism. He did not think a sharp line of demarcation could be drawn between symptomatic infantilism and backwardness. For that reason he would include both the first and second cases as symptomatic. Dr. Kellie lent him the first case two or three months ago and he demonstrated it at the Polyclinic as a case of symptomatic infantilism, probably intestinal or pancreatic in origin. He thought it was due to some defect in the pancreatic secretion, rather than intestinal. The other case was no doubt of intestinal origin. The child had a bad start in life, and was kept back by the chronic intestinal catarrh. Herter's cases were of the pancreatic type, but he ascribed them to the *Bacillus bifidus* and the *Bacillus infantilis* replacing the normal intestinal flora. The stools might be examined in the first patient to see if these organisms were present.

Dr. KELLIE, in reply, said he would have the iodoform test, the Wassermann reaction, and an examination for the *Bacillus bifidus* done and report to the next meeting. He believed that in intestinal infantilism there would be a toxæmia, and probably a raised temperature, whereas in his patient this was not the case. Therefore he thought the pancreas, not the intestines, was at fault.

## Persistent Jaundice.

By KENNETH KELLIE, M.B.

C. C., MALE, aged 5 months. Jaundice has been noticed since the fourth day after birth, but varies slightly in intensity. Motions are quite colourless and very frequent. Breast-fed entirely, but irregularly. One other child, aged 11 years. No miscarriages, no rash, but is said to have had a yellow discharge from nose. The liver can be felt three finger-breadths below the costal margin, and the spleen is enlarged and tender. The palate is vaulted. The child has gained 10 oz. during the last month.

### DISCUSSION.

Dr. KELLIE added that he thought it was either congenital obliteration of the bile-ducts, or congenital syphilis; probably the latter, because of the vaulted palate. Moreover, there was an eleven years' interval between the other child and this.

Dr. F. PARKES WEBER said he thought the case was one of so-called congenital obliteration of bile-ducts. The occasional coloration of the fæces, as Dr. Kellie had suggested, might be due to the admixture of urine, and the mother appeared to support that explanation. The enlargement of the spleen, as well as of the liver, fitted in with the same diagnosis. An important point was to ascertain whether urobilin was absent from the fæces and from the urine. If the obstruction to the flow of bile into the intestines was complete, then urobilin must be completely absent from the urine and fæces. Inherited syphilis was unlikely to have anything to do with the child's illness.

## Splenomegaly with Recurrent Jaundice, ending in Hepatic Cirrhosis and Ascites; with Remarks on the Splenomegaly of Inherited Syphilis in Children.

By F. PARKES WEBER, M.D.

THE patient, E. K., was shown before the Society for the Study of Disease in Children on March 17, 1905.[1] At that time she was 12 years old, a rather delicately built girl, with moderate jaundice. The fæces were sometimes well coloured, sometimes pale. The urine, which was free from albumin and sugar, had recently given a slight Gmelin's reaction for bile-pigments, but gave none at that time. The lower border of the spleen could be felt three finger-breadths below the costal margin in the left nipple line, and the area of splenic dullness was greatly enlarged (by percussion $3\frac{3}{4}$ in. in breadth and $6\frac{1}{2}$ in. in length). The liver seemed not to be enlarged, though it was occasionally felt below the costal margin. The other abdominal organs and the thoracic organs showed nothing abnormal, excepting that there was at times a slight systolic murmur to be heard over the pulmonary area of the heart. Pulse: About 84 per minute, but very much increased in frequency on excitement.

The teeth were not very well formed, but were not distinctly "Hutchinsonian." Ophthalmoscopic examination showed nothing abnormal. A blood-count (February, 1905) gave: Red cells, 4,824,000 in the cubic millimetre of blood; white cells, 5,100. A differential count of the white cells (March, 1905) gave: Polymorphonuclear leuco-

[1] F. P. Weber, *Reports of the Soc. for the Study of Dis. in Child.*, Lond., 1905, v, p. 191.

cytes, 65·2 per cent.; lymphocytes, 30·0 per cent.; large mononuclears, 4·8 per cent. The lymphatic glands were not enlarged. There was no fever, and the child was cheerful, and complained of no pain or abnormal tenderness anywhere.

The jaundice had apparently commenced about the middle of February, after the child had complained of pain in the left side (i.e., on the side of the spleen, not the liver); about that time she vomited twice. Six years ago she had had two attacks of jaundice, lasting two months and one month respectively, separated by an interval of three months, during which she was free from jaundice. Though the child presented no obvious signs of congenital syphilis, the history in regard to the mother's other children was somewhat suggestive of a syphilitic taint. The mother had eleven other children altogether, of whom six were born dead and two died early.

The patient was treated in the German Hospital from February 21 to July 2, 1905. When she left the hospital she was free from jaundice, with the exception of a very faint yellow tinge over the sclerotics, and her general health appeared to be good. The spleen, however, had not at all diminished in size in spite of treatment, firstly, by a course of mercurial inunction, with the internal use of potassium iodide, and, secondly, by a course of exposure of the splenic region of the body to Röntgen rays. The blood-count on July 1, 1905, gave 4,696,000 red cells and 3,400 white cells to the cubic millimetre of blood. The edge of the liver could just be felt below the ribs.

On leaving the hospital the patient seems to have got on well, but about three and half years later (December, 1909) she began to feel ill, and became slightly jaundiced. She was re-admitted on January 1, 1910, with ascites. The urine (free from albumin and sugar) contained a trace of bilirubin and much urobilin. The fæces were pale yellow in colour. The liver could not be felt. The spleen was large and hard, reaching down to the umbilical level. The patient was not in any way stunted in growth (no "infantilism"), but was somewhat thin and anæmic. A blood-count (Dr. G. Dorner) gave: Red cells 3,966,000 and 12,000 white cells in the cubic millimetre of blood; hæmoglobin, 62 per cent. Dr. A. E. Boycott kindly reported that blood-films showed nothing abnormal in the red and white cells; the average diameter of the red cells was 7·4 $\mu$. The blood-serum contained bilirubin. The resistance of the (washed) red corpuscles to graduated hypotonic salt solutions was kindly tested by Dr. Dorner, and was found to be about the average, or slightly above the average, for normal individuals.

On January 28, 1910, paracentesis abdominis was performed, and 5,200 c.c. of clear ascitic fluid of rather low specific gravity (specific gravity 1007) were withdrawn. On February 10 I noted that the belly was again distended with ascites, and that there was occasional slight fever. On February 17 a second paracentesis abdominis yielded 8,500 c.c. clear ascitic fluid; specific gravity 1006. The patient had increasing cachexia. A third paracentesis abdominis (March 10) gave 10,300 c.c. clear yellowish fluid (albumin 4 per mille by Esbach's tube). On March 21 a fourth tapping showed that the ascitic fluid (10,600 c.c.) contained an admixture of pus-cells, and gave a decidedly positive Rivalta's reaction. Death occurred on March 22. At the end some minute hæmorrhages into the skin of the abdomen were observed.

*Necropsy and Microscopical Examination.*—The brain (weight 46 oz.) and the cerebrospinal fluid in the ventricles were not bile-stained. The heart (weight 8 oz.) showed no valvular disease, but there were a few patches of pericarditic thickening. The lungs showed a certain amount of chronic collapse. The peritoneum contained a considerable quantity of bile-stained ascitic fluid, slightly turbid from the presence of pus. There was some thickening and a good deal of vascular injection of the peritoneum and mesentery.

The liver weighed only 26 oz., was contracted, and had a "hob-nail" surface. There were minute capsular hæmorrhages. Macroscopic and microscopic examination showed a medium degree of multilobular cirrhosis. The gall-bladder was adherent to the intestine by an old adhesion. No cholelithiasis. The spleen was large (weight 33 oz.), and microscopical sections showed the presence of an extraordinary degree of chronic fibrosis. Nothing of special importance was noted in the other organs. There were some petechiæ in the gastric mucosa. Dilatation of veins was found in the œsophagus. Some reddish lymph-glands were observed near the liver. The thoracic duct contained bile-stained fluid. The bone-marrow (shaft of the left humerus examined) was red throughout. No lardaceous change in the viscera was discovered.

In the foregoing case it is possible, but not certain, that an inherited syphilitic taint was the cause of the great enlargement and fibrosis of the spleen, and that it likewise predisposed the hepatic tissue to cirrhotic changes. As to the possible influence of alcohol, it is worth while mentioning that the mother used at one time to give the child a small "drop" of brandy and water when she was not well, and, later

on, the child used to take stout for a time. The great enlargement and advanced fibrosis of the spleen make it improbable that the condition of that organ was entirely secondary to the cirrhosis of the liver.

## Remarks on the Splenomegaly of Inherited Syphilis in Children.

On February 8, 1909, I showed a boy, J. B., aged 11 years, with chronic enlargement of the spleen and liver, at the Medical Society of London.[1] The spleen, of rather hard consistence, reached two or three finger-breadths below the ribs. The liver bulged forward in the epigastric region, and its lower edge could be felt two finger-breadths below the costal margin in the right nipple line. There was frequent slight bleeding from the nose or gums. The boy had a rather cachectic appearance, but was not really anæmic. Indeed, whilst he was under observation at the German Hospital (December, 1908, to May, 1909) his red blood corpuscles were found to vary in number between 5½ and 7 millions in the cubic millimetre of blood. The liver was apparently becoming cirrhotic. Calmette's ophthalmo-reaction and Pirquet's cutireaction for tuberculosis both gave negative results. There was a doubtful history of jaundice in 1907. No certain signs of inherited syphilis could be discovered, though there were points in favour of the presence of this taint. I hear that in October, 1910, he was admitted into the Hackney Union Infirmary with ascites. His belly was tapped three times before his death in December, 1910. The assistant medical officer who made a post-mortem examination kindly informs me that the liver was cirrhotic, exceedingly shrivelled and tough, with a very irregular and nodular surface. The spleen was big, and apparently somewhat fibrosed. The mesenteric lymphatic glands were enlarged. There was hydrothorax and hydropericardium, but no organic disease of the heart or lungs.

In children with splenomegaly supposed to be due to inherited syphilis hepatic cirrhosis is often likewise present.[2] In September, 1910, I saw a boy, E. S., aged 11½ years, with splenomegaly, apparently connected with an inherited syphilitic taint. As in the previous patient (J. B.), the teeth were not well formed, but were not distinctly "Hutchinsonian." The spleen extended downwards nearly to the umbilical level.

[1] F. P. Weber, *Trans. Med. Soc. Lond.*, 1909, xxxii, p. 368.

[2] Cf. Robert Hutchison's remarks at the annual meeting of the British Medical Association, 1908, *Brit. Med. Journ.*, 1908, ii, p. 1156.

The liver could not be felt. There was a history of two attacks of jaundice, close together, about two years previously. There were no definite signs of inherited syphilis, except that the Wassermann sero-reaction for syphilis (kindly tried by Dr. H. R. Dean, at the Lister Institute) was positive. The boy afterwards developed nephritis and ascites, and died in January, 1911, of uræmia. At the necropsy the liver (weight 23½ oz.) was found to be cirrhotic, of the ordinary multilobular and hobnail type. The spleen weighed 14 oz., and was of rather firm consistence; there were patches of old perisplenitic thickening of the capsule. The kidneys (weight together 17 oz.) appeared hyperæmic and swollen. The mesenteric glands were moderately enlarged. Dr. J. C. G. Ledingham kindly looked over the microscopic specimens with me. The sections of the liver showed ordinary multilobular cirrhosis with a parenchymatous degenerative change of centro-acinous distribution. The hepatic cells were loaded with fat droplets (stained with Sudan III). The kidneys showed parenchymatous nephritis. The spleen showed great congestion of the pulp, and considerable small cell infiltration about the vessels and trabeculæ. There was no history of alcohol to account for the hepatic disease. In this case the hepatic cirrhosis may have preceded and caused the enlargement of the spleen, as it apparently did it in the following case, in which no evidence of syphilis was obtained.

Several years ago a girl, aged 6 years, was under observation at the German Hospital, and the presence of hepatic cirrhosis was suspected on account of persistent slight jaundice, considerable enlargement and hardness of the spleen, and a rather abnormally small area of hepatic dullness. Slight enlargement of the superficial abdominal veins was likewise noted. Some months later the child was re-admitted with empyema and jaundice, and died. At the necropsy the liver weighed 15 oz., and showed coarse "hobnail" cirrhosis. Large portions of it consisted apparently merely of rather soft fibrous material. The spleen weighed 10 oz. No certain history of congenital syphilis or alcohol could be obtained, though the mother drank gin when suckling the child.[1]

In two brothers, I. C., aged 13 years, and S. C., aged 10 years, with

[1] In regard to a history of alcoholism in the parents of children with hepatic cirrhosis without any personal history of alcoholism in the children themselves, compare F. P. Weber's case, *Trans. Path. Soc. Lond.*, 1895, xlvi, p. 71; A. W. Fox's case, *Brit. Med. Journ.*, 1878, ii, p. 913; G. A. Sutherland's case, *Proc. Roy. Soc. Med.* (Section for the Study of Disease in Children), 1909, ii, pp. 65, 228; also G. A. Petrone's paper in *La Pediatria*, Napoli, 1903, second series, i, pp. 697-707.

splenic enlargement of uncertain origin, whom I showed at the Medical Society of London on February 12, 1906,[1] I could get no evidence of inherited syphilis, and did not suggest that diagnosis. In neither of the brothers was the anæmia more than very slight. I saw the elder one again in February, 1908, when the spleen was still considerably enlarged and the lower edge of the liver could just be felt. Dr. R. Hutchison kindly told me that this patient was in the London Hospital in November, 1909, in much the same condition as I noted in 1906, except that he had developed signs of pleurisy at the base of the right lung. The splenomegaly in the case of the younger brother (S. C.), whom Dr. Hutchison likewise examined about that time, seemed to have disappeared.

In cases of splenomegaly connected with inherited syphilis the anæmia seems seldom to be great even when the general appearance of the patient is cachectic. In some cases there may even be a condition of polycythæmia. In J. B., to whose case I have referred, the red blood corpuscles were always in excess, and in the case of a girl, whom I have seen in private, the polycythæmia was for a time so striking a feature that the case might almost have been called one of "syphilitic splenomegalic polycythæmia." When last seen (at the age of 19) she was far behind the normal in general and sexual development, and her spleen reached downwards to the level of the umbilicus. A striking feature of the case, in addition to the polycythæmia (which has now, apparently, disappeared), has been the recurrence of attacks of abdominal pain ("abdominal crises") of uncertain nature.

I cannot here enter into the scattered literature on the *splenomegaly of inherited syphilis*, but shall confine myself to summing up a few conclusions which (from a study of my own and other cases and the literature) have appeared reasonable to me :—

(1) Moderate splenomegaly in children about the ages of 5 to 16 years may be almost the only evidence of an inherited syphilitic taint, but, in such cases, Wassermann's sero-reaction for syphilis (if available) would doubtless generally give a positive result. Other evidence of inherited syphilis is occasionally forthcoming : the teeth may be more or less of the "Hutchinsonian type" ; there may be interstitial keratitis, persistent cracks at the corners of the mouth, a history of skin eruption in babyhood, a history of syphilis in the parents, or of inherited syphilis in brothers and sisters.

[1] F. P. Weber, *Trans. Med. Soc. Lond.*, 1906, xxix, p. 410.

(2) The splenomegaly of inherited syphilis is often accompanied by occasional (usually only slight) attacks of obstructive jaundice and by excess of urobilin (and urobilinogen) in the urine.

(3) Hepatic cirrhosis, with or without ascites, may be associated with the splenomegaly, and at the time of death the hepatic cirrhosis in such cases is probably usually of the ordinary multilobular ("hobnail") type.

(4) Though it seems doubtful that the cirrhosis of the liver in these cases is of specific syphilitic origin, it is quite possible that the presence of an inherited syphilitic taint may diminish the resistance of the liver towards the action of toxins (including alcohol) and render it specially liable to cirrhosis.

(5) The inherited syphilis in these cases may be—but often is not—associated with some degree of "infantilism"—i.e., more or less retardation in general physical development, and especially in the sexual functions.

(6) In these cases great caution must be employed with regard to antisyphilitic, especially mercurial, treatment, probably on account of the general delicacy of the patients and their liability to renal and catarrhal complications. Iodide of iron seems to be useful.

(7) In these cases there is generally very little real anæmia, even when the general appearance of the patient is cachectic; and anæmia, if present, is often only temporary. In some cases, on the contrary, there may be a certain amount of polycythæmia, probably of reactive nature, sometimes sufficient to constitute a symptom-complex, which might be termed "splenomegalic polycythæmia of inherited syphilis in children."

(8) Other unknown (toxæmic ?) conditions may cause splenomegaly and recurrent jaundice in children, similar to that met with in cases of inherited syphilis. "Abdominal crises" (pain, &c.), of uncertain explanation, may occur occasionally both in the inherited syphilitic and in the other cases.

(9) Some cases of "familial" splenomegaly occurring in two or more brothers or sisters may be dependent on an inherited syphilitic taint, but familial splenomegaly in children (I mean splenomegaly occurring in two or more brothers or sisters who survive the period of infancy[1]) is better recognized in connexion with congenital chronic acholuric (so-called

[1] Therefore I do not here refer to the splenomegaly of infants who die with so-called "congenital obliteration of bile-ducts," or to the splenomegaly in cases of "familial icterus gravis neonatorum." On the latter class of cases see especially J. Pfannenstiel, *Münch. med. Wochenschr.*, 1908, lv, pp. 2169 and 2233; Nahm, *ibid.*, 1909, lvi, p. 139; and H. D. Rolleston, *Brit. Med. Journ.*, 1910, i, p. 864. Pfannenstiel and Rolleston give references to a good deal of literature on the subject.

"hæmolytic") jaundice[1] and with primary splenomegaly of the "Gaucher type."[2]

(10) Splenomegaly in children may be the most important sign of the presence of hepatic cirrhosis, when the former is either secondary to, or due to the same cause as, the latter.

(11) Some cases of splenomegaly in children with inherited syphilis probably ultimately present the characteristic clinical features of splenic anæmia or Banti's disease.[3]

## DISCUSSION.

Dr. G. A. SUTHERLAND remarked that Dr. Weber had been very guarded in his conclusions, and there was not much in what he said which could be criticized adversely. An important point was as to whether syphilis was a possible cause of hepatic cirrhosis of the so-called alcoholic type. In his own case, which Dr. Weber referred to, he was much puzzled to determine whether it was associated with syphilis primarily, or with alcohol primarily. The boy died at 12 years, and his mother had died five years before of chronic alcoholism. This patient's father was healthy-looking, but he saw the elder sister of the boy, and he thought she had the characteristic syphilitic facies. At the autopsy on his case the liver was found to be cirrhotic, and of the type usually regarded as alcoholic. Dr. Weber made a reference to Banti's disease, which was usually supposed to be hepatic cirrhosis with ascites consequent on splenic anæmia; but great doubt had been thrown on hepatic cirrhosis in those cases at all, because Osler and others had found that there could be ascites in those cases without cirrhosis of the liver.

Dr. PORTER PARKINSON asked whether Dr. Weber drew a distinction between the cases described and Banti's disease; he judged from the paper that he did. There seemed to be two points of difference—namely, that in Banti's disease there was not necessarily syphilis; and secondly, that in Banti's disease there was leucopenia, more or less, throughout. He gathered that in Dr. Weber's cases that was not so. He supposed that they came into a different category.

[1] For the literature on the subject see F. P. Weber and G. Dorner, "Four Cases of Congenital Acholuric (so-called Hæmolytic) Jaundice in one Family," *Lancet*, 1910, i, pp. 227-232.

[2] References to the literature on the Gaucher type of splenomegaly are given by Weber and Dorner, *Lancet*, 1910, i, p. 232 (footnote); see also R. Hutchison and J. C. G. Ledingham in Allbutt and Rolleston's "System of Medicine," 2nd ed., 1909, v, pp. 778-780.

[3] The connexion of some cases of Banti's disease with congenital or old acquired syphilis has been suggested by F. Marchand and others. See Marchand, "Zur Kenntnis der sogenannten Banti'schen Krankheit," *Münch. med. Wochenschr.*, 1903, 1, p. 463.

Dr. PARKES WEBER, in reply, said that in the case of children with an inherited syphilitic taint, alcohol probably sometimes played a part in producing hepatic cirrhosis, the syphilitic taint having rendered the liver specially liable to be affected by alcohol and other exciting causes of cirrhosis. With regard to Banti's disease, what he said was: "Some cases of splenomegaly in children with inherited syphilis probably ultimately present the characteristic clinical features of splenic anæmia or Banti's disease." Banti's disease must at present be regarded as a symptom-complex, which may be produced in various ways as a result of the influence of various pathogenic factors.

## Ulcerative Stomatitis in Children.

By SAMUEL F. ROSE, M.R.C.S., L.D.S.

THE few notes I have the pleasure of bringing before you to-night relate to a condition that is often met with in children of the poorer classes, particularly in cities, and consequently crops up pretty frequently in an East End of London children's hospital. In the dental department of the Queen's Hospital for Children I have been brought in contact with a good many cases of this kind during the past few years.

The child is generally brought in the first place for loss of appetite, pallor, and debility generally; often the parent will comment also on the offensiveness of the breath. The physician, after a glance in the mouth, quickly calls in the aid of the dental surgeon.

The features presented by a typical case are as follows:—

(1) Unilateral ulceration in the molar region affecting the gum margin, the inner surface of the cheek where it rests against the teeth, and sometimes the corresponding side of the tongue.

(2) One or more loose or septic teeth on the affected side.

(3) A thick, soft yellowish and highly offensive deposit on the teeth of affected side.

(4) Horrible fœtor of the breath.

### CAUSATION.

There can be little doubt that robust children are insusceptible to the disease. It is quite rare among the better classes of society, and in private practice one hardly ever sees it. Malnutrition, overcrowding,

and slum-life generally predispose, particularly when the system has been further weakened by one of the exanthemata. In some cases no local exciting cause can be found, the teeth being quite sound, and the onset of the disease inexplicable, but in the majority of patients there are one or more loose or septic teeth on the affected side, or perhaps an erupting first permanent molar; these no doubt acting as sources of reflex irritation. The age of the patient will be somewhere between 3 and 10 years, about 6 being the average.

I do not think the typical disease, as seen in children, occurs in adults; at any rate one can safely say it is very uncommon.

### Course of the Disease.

It begins as a congestion of the gum in the molar region of one side, starting perhaps more often in the lower jaw, the other usually quickly following suit. Ulceration of the gum margin supervenes and the breath takes on the characteristically offensive odour, which is almost diagnostic in itself. Very speedily the cheek and then the tongue become affected, the ulceration in the first place corresponding pretty closely with the surface of contact with the crowns of the molar teeth. The sore and crippled state of the affected side produces a one-sided mastication, and the result of this is that the teeth in the diseased region become thickly covered with a dirty yellowish or blood-stained deposit consisting of food débris and discharge from the ulcers, whilst the other side may be quite clean. Very little pain is complained of, but of course eating is a matter of some difficulty. Bleeding from the mouth during sleep is common. The ulceration of the gum margin proceeds, destroying the interdental tags so that considerable spaces are left between the approximal surfaces of the teeth, which get filled up with the deposit. The alveolus may be laid bare and portions necrose, depriving the temporary teeth of their sockets and causing their exfoliation. Even the germs of successional teeth may become involved and prematurely lost.

The ulceration of cheek and tongue, as a rule, is shallow and covered with a yellowish slough. The lymphatic glands, particularly in the submaxillary region, are enlarged and tender.

In bad cases the cheek may ulcerate deeply and become infiltrated and brawny; the similarity to cancrum oris then forces itself upon one, and this has led many to consider that the common ulcerative stomatitis and the more serious gangrenous form differ only in their relative

severity. My own experience tends to confirm this view, as I remember one fatal case which seemed to start as a simple ulceration, but got rapidly worse and presented considerable sloughing of the soft parts, necrosis of alveolus, and loss of many teeth, death finally occurring from septic pneumonia.

As stated above, the disease is nearly always unilateral, but in certain cases a different type is encountered. Occasionally one sees the incisor region attacked, either lower or upper, or both, with molar regions free. These cases do not seem to be so acute in their course, and have less tendency to involve overlying soft structures. I do not remember a case where both molar regions were attacked simultaneously.

It is stated that ulcerative stomatitis occasionally occurs in epidemic form in schools or institutions where large numbers of children are congregated together. This I have not personally encountered, and should scarcely think it is the same as the sporadic variety so frequently met with, as this does not seem to spread even through a family; the only case of possible contagion that I have noted being one where two brothers were attacked, one a fortnight after the other.

## Treatment.

In treating this disease the first thing to do, of course, is to remove any tooth that may be acting as a source of irritation or septic mischief. The bowels must be regulated and a nourishing diet of a soft character advised, having regard to the soreness of the mouth. Then we must prescribe chlorate of potash internally—and I wish to lay special stress upon the value of this drug in the treatment. Its effect in most cases is truly surprising, the odour of the breath disappearing, and the ulcers healing rapidly. Under its beneficent action many cases will be quite well in a week, and in nearly all there will be much improvement. From 3 gr. to 10 gr., according to the age, should be given three times daily in a little orange syrup and water, or it may be combined, if desired, with tonic agents.

Local applications to the ulcerated surfaces may be used if the child is sufficiently tractable to allow of this being done carefully, and for this purpose silver nitrate, 10 gr. to the ounce, is valuable, applied at the first visit and again in three or four days' time; but very often our patient violently resents this treatment, and we have to rely on our sheet anchor, the chlorate of potash.

I always prescribe a mouth-wash of permanganate of potash as a routine measure, though I am by no means persuaded of the efficacy of mouth-washes generally as used by small children. Still they may do some good. If the child is too young to use a wash in the ordinary way, I advise the mother to swab the mouth out with it as thoroughly as possible.

Of course, the surroundings of the patients should be inquired into, and the hygiene improved where defective, though unfortunately in our London slums this seems almost impossible.

## Bacteriology.

Nothing is known for certain as to the organism responsible for the disease. The *Bacillus fusiformis* and the *Spirochæta dentium* are always present, and Goadby found the *Saccharomyces albicans* in large numbers, in addition, in three cases he examined.[1] But no one has proved that any of these organisms produce similar pathogenic results when inoculated.

Some consider the epidemic form to be identical with foot-and-mouth disease in cattle, communicated to the children by infected milk.

## DISCUSSION.

Mr. Sydney Stephenson said that some years ago, when he was in charge of the Ophthalmic School at Hanwell, W., an institution with 350 beds for children with diseased eyes, he was familiar with the form of stomatitis which the paper dealt with. He made many smear preparations from the diseased gums, and in nearly all the cases found spirilla.

Dr. Porter Parkinson alluded to a practical point in regard to the administration of chlorate of potash—namely, that occasionally it caused toxic hæmoglobinuria, though he had not had a case of it. He always told mothers in such cases that as soon as the mouth was better, the medicine must be stopped. When it acted on the urine, it made it of a red or brown colour. He had often found that the pain of ulcerative stomatitis was much lessened by swabbing a solution of nitrate of silver over the surface, and it permitted mastication to be carried on almost from the first application.

Dr. Parkes Weber said he thought that the fear of causing hæmoglobinuria might unduly prejudice practitioners against the use of a really

[1] Colyer, "Dental Surgery and Pathology," 1910, pp. 650, 651.

valuable drug. Hæmoglobinuria was almost unknown in England as a result of ordinary doses of chlorate of potash.

Mr. ROSE, in reply, said he believed that the spirillum and *Bacillus fusiformis* were found in most ulcerative states of the mouth, and he did not think that any authority connected either of them specially with ulcerative stomatitis of children. He had not heard of hæmoglobinuria occurring in patients taking chlorate of potash, and was much obliged for its being brought to his notice. It was a good and simple rule to give a grain for each year of the child's age as a dose, and stop the administration as soon as the mouth was better. The only complaint he had had from a patient who was taking the drug was that of headache, but he could not be sure that there was any causal connexion.

# Section for the Study of Disease in Children.

February 24, 1911.

Dr. E. CAUTLEY, President of the Section, in the Chair.

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## Case of Spasmus Nutans.

By ERIC BELLINGHAM SMITH, M.D.

J. T., AGED 11 months, brought to the out-patient department for "movements of head and eyes." The side-to-side movements of the head were first noticed two months ago, and were followed in a week by the nystagmus. The head movements are of the negative type, last only a few seconds, and tend to recur every few minutes if the head is unsupported; recently they have become less frequent. They cease when the child is lying in its cot. The nystagmus is horizontal and more marked in the right eye than the left. It is fine and exceedingly rapid. When the attention of the infant is directed to any object he gazes at it out of the corner of his eyes and with head averted, or, as the mother describes it, "he has a shy, round-the-corner look." There is occasionally present a convergent strabismus, and twitchings of the left hand are said to occur.

## Congenital Dilatation of the Colon.

By J. PORTER PARKINSON, M.D.

THIS child, a girl, aged 6 years, was admitted into the Queen's Hospital for enlargement of the abdomen and constipation. Except for constipation and occasional colic, the child had been healthy from birth;

and there was no history of consumption or syphilis in the family. On admission the girl was healthy and well-nourished-looking, not in the least anæmic. The heart and lungs were healthy except for displacement of the diaphragm upwards, which caused the heart's apex to be displaced into the fourth space, and compressed the bases of the lungs. The abdomen was greatly distended, measuring 29 in. in diameter, and the peristaltic movements of the colon were occasionally visible. It was not tender, and was generally resonant. Enemata brought away enormous quantities of fæces and the abdominal distension disappeared, so that now the measurement is only 21 in. The colicky pains have disappeared. The skiagrams taken after injection of bismuth show the great enlargement of the colon. Examination of the stomach by auscultatory percussion and other methods suggest there is some enlargement of this organ.

## DISCUSSION.

Mr. SKELDING (Bedford) asked whether any surgeon present had operated upon such a condition, and, if so, what condition was found. He had operated upon one such patient, a boy of the same age as this girl. In his case considerable hypertrophy of the colon was manifest. The transverse colon occupied a position well below the umbilicus, and it formed a kink at both the splenic and gastric flexures which, no doubt, helped to cause pain. He did not know whether he did any permanent good by stitching the transverse colon into a better position, but the child improved. He did not think the name "congenital dilatation" was sufficient.

Mr. LOCKHART MUMMERY said he had seen six such cases. He had operated upon two, one of them being 23 years of age. He had seen the condition before and after death. The one thing to avoid in operating was colotomy. He had collected, for the purpose of his Jacksonian essay in 1908, 120 cases, and he found that of the total number of cases that underwent colotomy, the death-rate had been 75 per cent. The reason was that colotomy, as understood, could not be performed; it was impossible to make a spur with a colon 9 in. in diameter. One simply brought up a piece of gut and sewed it into the wound. Where that had been done the gut tore itself away, and leakage occurred into the peritoneal cavity, with the usual result. There were only two classes of operation which did any good. (1) Where the involved portion of the colon had been excised. There were a certain number of cases in which the involved portion of colon had been resected, and an anastomosis performed. Some of those did very well. In two cases marked dilatation of the colon recurred after the anastomosis; in one case twice. (2) Where exploratory, laparotomy only was done. In his successful case he did an appendicostomy, because there was intestinal obstruction threatening to terminate fatally. The

operation was done three years ago, and two months ago the patient was still well, had had no further obstruction, and daily attended his business in the City without inconvenience. The name, he considered, was wrong; the hypertrophy was as marked as the dilatation. In some cases the involved part of the colon was ¼ in. thick.

Mr. DUNCAN FITZWILLIAMS said it was always taken for granted that these were congenital dilatations of the colon. Sometimes, as Mr. Mummery indicated, the condition might be acquired. One of his friends had his appendix removed some years ago, and apparently everything except that structure was normal at that time. Five years later he developed "congenital" dilatation of the colon, and died from it recently. Post mortem there was found not to be any obstruction; but during the last three years he had had a condition which was indistinguishable from what was called "congenital dilatation of the colon."

The PRESIDENT (Dr. E. Cautley) said such cases varied considerably in type. There were some in which portions of the colon were narrowed for a considerable distance. So-called congenital dilatation of the colon was usually a mixture of dilatation and hypertrophy, though eventually there might be general hypertrophy. Patches of hypertrophy and of dilatation had been found in the same patient. Some cases were congenital; a baby under his care had died at the age of eight weeks. Probably a similar condition could occur later in life. It had been ascribed to a neuro-muscular or vascular defect.

## Cerebral Athetotic Diplegia.

By EDMUND CAUTLEY, M.D.

THIS case I regard as an illustration of cerebral spastic paralysis in which there is slight rigidity and fairly well marked athetotic movements of the limbs. The child, a girl, aged 2¾ years, is well nourished. Her mental condition is lively but defective. She laughs and cries without obvious cause, and can only speak a few comprehensible words. Her expression is usually a rather vacant smile. The pupils show no abnormality and there is no nystagmus. The palatal arch is high and the teeth are well developed. The head is asymmetrical, 18½ in. in circumference, and the chin recedes. It is always held a little to one side as if there were slight torticollis. The hands exhibit ataxic and purposeless movements while at rest and some inco-ordination on movement. The child cannot hold a cup or spoon steadily. There is a little scoliosis in the mid-dorsal region with the convexity to the right. The knee-jerks are exaggerated, especially on the left side. The legs are

a trifle stiff and the feet in the position of equinovalgus, but the deformity is easily reduced. The toes are not hyper-extended. The gait is ataxic and slightly spastic; and the right leg is somewhat flexed at the hip and externally rotated. There is also incontinence of urine.

The family history is negative. The mother was only 19 years old and unmarried at the time her baby was born. Labour was rapid, taking only an hour and a half.

The child was very small, though born to term. At four months she could sit up. This is an important point in favour of the condition being post-natal in origin. She cut her teeth quickly, and is said to have talked well at 2 years of age. She could walk a little by herself last October, but was never able to walk well, as her feet turned out. Nine months ago she had an apparently trivial fall from the arms of a relative on to the carpet. About this time her back was found curved. For the last four months she has been kept on her back, and for a month or so she is said to have become "strange in her mind." She is not completely imbecile, and will talk a little. The fundi are normal. I have little doubt that there is mental defect in conjunction with the lack of co-ordination; and that there may have been structural damage, possibly by mild encephalitis, of the frontal and parietal regions of the cortex, the causation of which is uncertain; or that the condition is congenital in origin.

## DISCUSSION.

Dr. CAUTLEY said that the prognosis was doubtful, and one was handicapped by having to depend on the history. If it were congenital, one would have expected the child to improve as she got older. If, however, it were true that she had become "strange in her mind" only during the last month, it looked as if there were progressive deterioration, or that the mischief was more recent in origin.

Dr. LEONARD GUTHRIE said the case was very puzzling, especially if the history were regarded as accurate, which he thought was not the case. The child had a very small head for its age, which was in favour of it being a congenital abnormality. It was an asymmetrical head and was suggestive of microcephaly. He believed there was some condition before birth which accounted for the athetosis and spasticity. Although the child was not an absolute idiot, it was feeble-minded, and he did not think the prognosis was good.

Dr. LANGMEAD referred to Captain McCarrison's investigation of endemic goitre in the Chitral and Gilgit valleys of India.[1] During that research he came

[1] *Proceedings*, 1909, ii (Med. Sect.), pp. 1-36.

across some cases of children who had goitrous parents, and whose brothers and sisters were cretins, who were the subjects of a condition called by him "a nervous form of cretinism." Those cases closely resembled cases of cerebral diplegia. They improved somewhat when treated by thyroid feeding.

Dr. BOX said his conclusion from Captain McCarrison's paper was that the cases must have been congenital diplegias, and since then he had tried the effect of thyroid in many spastic cases, but had not seen any good results from it. He asked if the cerebrospinal fluid of this child had been examined, and if the question of syphilis had been inquired into. He believed many cases of congenital or ante-natal diplegia were being found to be syphilitic in origin.

Dr. CAUTLEY, in reply, said there was no history suggestive of syphilis, but a Wassermann reaction would be tried. The fact of the child being illegitimate made one think of syphilis. He agreed with Dr. Guthrie that the condition might be congenital, somewhat allied to microcephaly. On the other hand, the child was steadily improving.

## Case of Congenital Absence of the Pectoral Muscles.

By DUNCAN C. L. FITZWILLIAMS, F.R.C.S.

A GIRL, aged 13 years. Both the pectoral muscles are absent on the left side, and the chest is flattened, and the ribs can be seen as well as felt on that side in consequence. This is best demonstrated by asking her to press her hands together with the arms stretched out straight in front of her. The anterior wall of the axilla is composed of a prominent fold of skin, which stretches from the front of the chest to the arm, almost in the manner of a web. There is an asymmetry about the shoulders, and the left scapula appears "winged," although the trapezius and serratus magnus muscles seem normal. No other abnormality has been observed, and no history can be obtained of deformity in the family. The scars present are the result of the removal of tuberculous glands.

Dr. GUTHRIE said the girl was under his care three years ago, and previously to that she had been under the care of a surgeon. The scars were said to be the result of the removal of tuberculous glands. But they were not tuberculous; they were lymphadenomatous. Treatment by arsenic caused the glandular enlargements in other parts of the body to disappear. That raised the question whether the pectoralis muscles were absent, or whether they were atrophied as the result of peripheral neuritis due to the arsenic. The absence of all traces of the muscles was against the latter view.

## A Case of Anorexia Nervosa.

By J. WALTER CARR, M.D.

PATIENT is a Jewess, aged 10 years. Her previous history is rather indefinite, as both parents are dead. She is said to have been healthy until she was 5 years old, when she lost her appetite, had pain in the stomach after food, and began to waste. Nearly three years ago she was in the Great Ormond Street Children's Hospital for six weeks. Her weight was then 25½ lb., and she gained 1½ lb. under treatment. Her appetite was very poor, and she vomited occasionally. No definite cause for the wasting was made out.

She was admitted to the Victoria Hospital, Chelsea, last September. Her weight then was 26 lb., and is now about 27 lb. She is excessively emaciated, but can walk about quite easily. She has no appetite, and complains of a lump in her throat, which she says prevents food going down. She has been sick nearly every day since admission, often five or six times, usually very soon after taking food. Her temperature is generally subnormal, and there is no evidence of disease in any part of the body. Bismuth and radiography show that there is no obstruction in the œsophagus and no dilatation of the stomach. The tongue is sometimes much furred and sometimes clean. The bowels act fairly regularly.

The treatment tried has included isolation and massage, faradism, feeding by nasal tube, gastric lavage daily, starvation, and chloretone, to produce drowsiness; but the vomiting continues, and the general condition remains unaltered.

### DISCUSSION.

Dr. CHARLES W. CHAPMAN considered that the girl had not had sufficient correction when young. He suggested that her body should be rubbed well with oil night and morning before the fire. He would also give small doses of cocaine mixed with the food. If that failed, he would give injections of bromide of sodium with beef tea. A young girl with hysteria, whose case he reported some years ago, did very well when treated on these lines.

The PRESIDENT asked whether it was likely that there was ulcer or pyloric spasm at the bottom of the condition.

Dr. F. PARKES WEBER asked whether there was any suspicion of supra-renal insufficiency. He referred to the case of a girl, of Jewish parentage, who was thin, imperfectly developed, and spoke in a kind of whisper. She would

eat very little, probably on account of discomfort after eating, but she did not vomit. There was habitual constipation. Her blood-pressure was low. She seemed feeble in every way. She was now 19 years old, but had never menstruated, unless on one occasion about four and a half years ago. Dr. Weber regarded the case to which he referred as possibly one of a kind of "suprarenal infantilism."

Dr. CARR replied that had there been pyloric spasm due to duodenal trouble there would by this time have been some dilatation of the stomach, but no evidence of that was revealed by X-ray examination after a bismuth meal. Moreover, the vomiting was not of the type associated with a dilated stomach; the child returned her food shortly after taking it, and not in large quantities. He did not think suprarenal inadequacy would account for the vomiting.

## Specimens from a Case of "Delayed Chloroform Poisoning."

By A. W. G. WOODFORDE, M.B.

A. S., AGED 9 years, was admitted to the Queen's Hospital on November 30, 1910, for the removal of an enlarged gland in the right side of the neck. Except for the gland in question, patient showed no sign of disease. On the following day the gland was easily removed, anæsthesia ($CHCl_3$) lasting in all about fifteen minutes. On recovering consciousness he vomited once, and it is reported that he passed a comfortable night.

On December 2 he vomited twice, but took the usual light diet well, and appeared to be in a satisfactory condition.

December 3: Slight vomiting on three occasions.

On the morning of December 4 he ate part of his breakfast, and was then noticed to be in rather a collapsed state. He appears to have reacted well to simple restoratives. He is said to have slept heavily during most of the day (December 4), but was never unconscious. Early in the evening of the same day he vomited, and about 8 p.m. became unconscious. Two hours later respiration ceased. With artificial respiration the heart continued to beat until 3 a.m., December 5, five hours after the failure of respiration.

The urine, tested shortly before death, contained a large amount of (?) acetone.

The report of the post-mortem examination, made twelve hours after death, is as follows: Body of a well-developed boy. Rigor mortis

present, but not markedly so. Post-mortem lividity well marked. No jaundice. Recent incision in right anterior triangle of neck, 1¼ in. long; surrounding tissues healthy; no evidence of sepsis. Pharynx and larynx natural. A small quantity of clear yellow fluid was present in each pleural cavity. The lungs showed a general venous engorgement, but no evidence of tuberculosis. The bronchial glands were slightly enlarged, and one showed a nodule of caseating tubercle. Thymus natural. The pericardial sac contained 2 oz. of clear fluid. The heart was dilated and flabby; all the cavities were distended with black clot; the muscle was pale, soft and friable; abundant naked-eye evidence of fatty change was present. The liver was enlarged, golden yellow, and flabby; numerous small hæmorrhages were scattered over its surface; the fatty change appeared to be general, the organ exhibiting a uniform yellow section. The spleen was enlarged but showed no other abnormality. A small number of submucous hæmorrhages were seen in the stomach. The intestine appeared to be healthy. One caseous gland was found in the mesentery of the small intestine. The kidneys were markedly large and soft. Capsule stripped readily. On section, the cortex was uniformly yellow—the pyramids being a deep red, and standing out in marked relief.

Examination of the brain was not allowed.

Pieces of the heart, liver, kidney, and spleen were hardened in formalin (10 per cent.), Zenker's and Marchi's fluids respectively, and sections prepared. In addition to the osmic acid preparations some of the sections were stained with Fett-Ponceau. Sections of heart muscle showed a uniform granular appearance of all the fibres, so that no trace of striation can be seen; the granules are very fine and consist entirely of fat; the nuclear staining is good; some fibres appear to be slightly swollen, and fragmentation is occasionally seen. The liver shows a general fatty degeneration most marked in the middle and outer zones of the lobules, where the cells are entirely converted into a large fat globule; in the inner zone the liver cells have to a large extent preserved their natural appearance, though the majority of them show fine fat droplets; nuclear staining is on the whole good. The spleen shows a small degree of fatty change, with a very patchy distribution. The kidney shows an enormous fatty change; the cells of the convoluted tubules are, without exception, converted into fat in the sections examined, though no change could be detected in the glomeruli; the fat is present as large globules, in most cases entirely obscuring the nucleus. The loop and collecting tubules show a lesser degree of fatty change,

and the fat is in smaller droplets. Nuclear staining is on the whole good.

I think this case undoubtedly illustrates the condition known as "delayed chloroform poisoning," and though these notes are of necessity scanty, the condition is sufficiently rare to be interesting.

## DISCUSSION.

Dr. LEONARD GUTHRIE asked whether there was any history of cyclical vomiting with acidosis. He believed that the subjects of cyclical vomiting and acidosis were potential victims to post-anæsthetic poisoning. Operations under anæsthetics in the intervals between attacks might be safe, but were particularly dangerous on the eve of, or during an attack, of cyclical vomiting. Post-anæsthetic poisoning was merely an extremely severe attack of cyclical vomiting with acidosis, induced by a general anæsthetic. The name "delayed chloroform poisoning" suggested that the symptoms only followed chloroform anæsthesia, whereas ether, ethyl chloride, and even nitrous oxide, might give rise to them. But he believed that chloroform was the most dangerous of all, because of its specific action in producing fatty changes in the liver and elsewhere. With regard to prophylaxis, inquiry should always be made as to cyclical vomiting in cases of suggested operations of expediency, and cyclical vomiters should be carefully dieted beforehand in regard to excess of fats and carbohydrates. In operations of urgency, oxygen should be used with ether and alcohol, or anæsthesia should be induced by stovaine. There were two views as to causation and treatment: one was that the symptoms were due to fatty acid intoxication, and should be treated by alkalies in order to neutralize the excess of fatty acids present, the other view was that the symptoms were due to carbohydrate starvation. He did not think fatty acid intoxication was alone responsible, because the acetone bodies were not poisonous. He thought there was sepsis present in addition, with which the liver, already fatty and on the verge of inadequacy, was unable to deal, owing to the action of the anæsthetic, which was that of the "last straw." In his experience, treatment by alkalies had been useless. The theory that post-anæsthetic poisoning was due purely to carbohydrate starvation was based on the fact that in cases of diabetes the acetone bodies could be removed by supplying carbohydrates, and on these grounds one authority had even said that if the patient had a meal of well-sweetened carbohydrates before the operation fatalities would not occur. He (Dr. Guthrie) did not believe in the carbohydrate starvation theory; it was not supported by clinical evidence. The treatment, however, by intravenous injection of solutions of dextrose might possibly be of service in that the carbohydrates were carriers of oxygen.

Dr. BLUMFELD said the history in the case did not resemble very closely what usually occurred in cases of the kind, as the vomiting did not increase in frequency, and it was curious how the heart continued to beat when artificial

respiration was kept up so long. The mode of death seemed to resemble that which occurred in cerebral cases, and he asked whether the brain was examined, as no post-mortem account of this was given. All these post-anæsthetic cases seemed of doubtful causation, and they did not know how far the anæsthetic was to be held responsible. One difficulty was the contradictory nature of experimental evidence. Experimentally, one must give for several days small doses of chloroform, or a large dose on one or two occasions in order to cause the fatty degeneration, such as was seen in this case. The anæsthetic, he believed, played a very small part, and he did not think it certain that cases had followed the giving of any anæsthetic other than chloroform. The practical lesson seemed to be that children should not be given pure chloroform over protracted periods of time.

Dr. LANGMEAD supported Dr. Guthrie in his remarks, who, he said, was the last person to suggest that the condition of the liver and other organs was due simply to the poisonous action of the chloroform. We were quite ignorant of the manner in which the condition was produced, none of the views propounded being satisfactory. The more complicated the suggestion brought forward in explanation of the condition, the more difficult was it to refute. Simple abstention from carbohydrate was not sufficient, for sometimes ample carbohydrates had been given. Profound changes in metabolism occurred due to an unknown cause. He, with Dr. Guthrie, would emphasize the close relationship of cyclical vomiting to post-anæsthetic poisoning. He had examined post-mortem subjects who had died of cyclical vomiting, and had found the livers apparently precisely the same as those which occurred in so-called delayed chloroform poisoning.

The PRESIDENT thought that, while it might be justifiable of Dr. Blumfeld to contend that the condition was not due to anæsthesia, it was scarcely wise to take up the further position that such cases only followed the administration of chloroform. The deaths were associated with fatty degeneration or fatty overloading of the liver and other organs, and the anæsthetic might be regarded as the "last straw." How the anæsthetic acted was uncertain. He agreed that acid intoxication was not the cause. He also agreed with what had been said about carbohydrate starvation. The mode of death was much more comparable to that of acute yellow atrophy of the liver than that of diabetes, and probably it was due to autolysis of the liver cells. There was room for further investigation on the point.

Dr. WOODFORDE, in reply, said there was no history of cyclical vomiting; the patient had been healthy until the enlargement of the glands in his neck was noticed. He could not say much about treatment, as he was not in charge of the case; it only came under his notice as a pathologist. After December 4 the treatment consisted of stimulation, oxygen, and infusion with a solution of dextrose. With regard to vomiting, a number of cases had been recorded in which the post-mortem findings had corresponded with those in this case, and yet there had been very little vomiting.

## Angiomata of the Left Loin and Leg.

By E. I. SPRIGGS, M.D., and J. B. DE W. MOLONY, M.B.

M. B., AGED 4½ years, was born with a large mass on the left side of her belly and numerous smaller lumps along her left leg. She is one of a family of six healthy children, none of whom have birth-marks of any kind. She has never had any illness. During the last two years the mass on abdominal wall has slowly increased in size, the other lumps have remained unchanged. In the left loin there is an irregularly shaped tumour extending from the eighth rib to 1½ in. below anterior superior spine and from mid-Poupart line to the level of post-superior iliac spine. It is of a soft, doughy consistence, lies superficially to muscles, and gives no expansile pulsation or thrill. There are numerous small nævi in the skin over tumour. Some vessels enter its lower edge. There is a similar, but smaller, tumour in the adductor region of the left thigh which extends backwards towards the fold of the buttock. On the left leg there are fine, pigmented swellings extending along the internal saphena vein, each the size of a hazel-nut, and a small, non-pigmented mass on the inner surface of left foot. There are numerous small "nævi" scattered over the child's back in a more or or less symmetrical arrangement. Except for enlarged inguinal glands on both sides the child showed no signs of other abnormalities.

## Congenital Aortic Stenosis.

By C. RIVIERE, M.D.

BOY, aged 5 years and 7 months. History: Healthy from birth, no "growing pains" or other illness. No "maternal impressions," no maternal rheumatism.

Present Condition: Of normal size, nutrition, and colour. No finger-clubbing, no nodules. On the left side of the neck along the anterior border of the sterno-mastoid is the scar, 2½ in. long, of a branchial fistula which was successfully operated on in November, 1907. The heart appears of natural size, but the impulse is powerful. There is a

thrill over the base of the heart, best felt to the left of the sternum, and also over the vessels in the neck. On auscultation a rough systolic murmur is heard over the whole heart, but of maximum intensity over the aortic area and conducted a long way into the large arteries. The aortic second sound is clear, and there is no evidence of a patent ductus arteriosus. The pulse, 100 per minute under examination, appears to be rather small and soft.

The PRESIDENT said that some years ago he showed at the Medical Society [1] a similar case in an older boy. On account of the rarity of such cases, his diagnosis was received with scepticism. The boy was apparently healthy, but a month later he died suddenly in the street, and the heart showed pure aortic stenosis.

## Case of Lichen Spinulosus.

By J. L. BUNCH, M.D.

BOY, aged 2 years and 7 months. Some months ago an eruption of papules with central blackish spines made its appearance on the chest, and later on the shoulders. These lesions are seen and felt to consist of fine pigmented spines, which can easily be removed and then leave definite depressions marking the openings of the follicles. Some of these follicles have become infected with staphylococci. There are also some lesions in the groins, but the characteristics of lichen spinulosus are not so well marked in this position, and the papular nature of the eruption is not so definite. Fresh lesions appear in crops.

[1] *Trans. Med. Soc. Lond.*, 1900, xxiii, p. 323.

# The Oculo-motor Type of Polio-encephalitis.

By SYDNEY STEPHENSON, C.M.

## INTRODUCTION.

EVERYBODY now recognizes that there exists an acute, primary, specific disease affecting the grey matter of the brain. This malady, known as " encephalitis " or " polio-encephalitis," was first described by Strümpell in the year 1884. It is comparable with acute anterior polio-myelitis (" infantile paralysis "), and, like that disease, occurs in children, is of acute onset, and tends towards recovery. It may or may not be associated with such general symptoms as fever, convulsions, drowsiness, stupor, loss of consciousness, coma, headache, nausea, and pronounced irritability. The special symptoms produced by the disease depend, of course, upon the particular region of the grey matter of the brain involved. For example, polio-encephalitis superior, which affects the nuclei of the cerebrum and cerebellum, may give rise to mental changes, hemiplegia, diplegia, ataxia, or disturbances of equilibrium, while polio-encephalitis inferior, which affects the nuclei of the pons and medulla, may cause paralysis of one or several of the cranial nerves or acute bulbar palsy. The essential pathological changes appear to be thrombosis of the smaller blood-vessels, together with hæmorrhages into the grey matter and cellular exudation.

The evidence, both clinical and pathological, goes to show that affections of the grey matter, whether of the brain or of the spinal cord, are in reality one and the same disease, and are probably due to a single factor, be it infective or toxic in nature. The two affections may occur in epidemics, in which some members of the same family may suffer from the spinal and others from the cerebral variety. Indeed, cases are known where eye symptoms, as ptosis, ophthalmoplegia, and pupillary changes have been associated with an affection of the spinal cord, and the combined condition has then been termed *polio-encephalomyelitis* (B. Sachs).

## THE OCULO-MOTOR TYPE OF DISEASE.

For some years I have been familiar with a group of cases, the chief characteristic of which is the sudden onset of paralytic squint at an age when squint is not altogether common. The cases are met with in

children often of tender age. The condition may arise without obvious cause. On the other hand, it may be observed after some childish ailment, as scarlet fever or measles, and I have known it follow an injury, a fright, or some trifling operation, as vaccination or circumcision. The child, often apparently in his usual health, is put to bed, and on awaking next morning is found to present a squint, a thing never noticed by his parents before. The family physician is summoned. He surmises that "there has been a fit in the night," and that is the usual explanation offered by the mother when she brings her child to hospital or elsewhere for advice about the eyes.

In my experience, the condition, as described above, is far from uncommon. The clinical material at my disposal is not specially large. Yet I have had no difficulty whatever in collecting twenty-eight examples of the disease.

My observations lead me to conclude that the oculo-motor symptoms in these cases depend upon an acute focal encephalitis, quite analogous with the better-known forms of that disease.

That the condition should so far have escaped general recognition is probably due to the fact that in three-fourths of the cases the external rectus of one eye is alone affected, so that on casual examination of the child in the out-patient room, the condition passes as an example of the convergent concomitant strabismus so familiar in childhood. In the rarer event of ocular muscles other than the external rectus being involved, however, the paralytic nature of the squint could scarcely be overlooked. Finally, another reason why the significance of the eye symptoms is apt to be missed lies in the fact that in upwards of two-thirds of the children there is no obvious disturbance of the general health.

In endeavouring to construct briefly the symptom-complex of the disease outlined above, I shall draw upon the notes of twenty-eight such cases which I possess. The following points will be taken up, and examined in the light afforded by the figures in my possession: (1) Sex; (2) age when seen; (3) age of onset; (4) the influence of other illnesses, &c.; (5) the associated signs and symptoms; and (6) the nature of the oculo-motor manifestations.

(1) *Sex.*—My list of twenty-eight cases includes sixteen females and twelve males, from which we may probably conclude that sex has no particular determining influence upon the incidence of the disease.

(2) *Age when seen.*—The patients came under notice at ages that varied from 3 months to 30 years, the average in months being 78·8.

(3) *Age of Onset.*—The age of onset ranged from shortly after birth to 4½ years. The average of the twenty-eight cases, stated in months, was 19·1. To put the matter in another way, of the total cases, fourteen, or exactly one-half, began in the first year of life.

For purposes of comparison it may be stated that in a series of 1,017 cases of unilateral convergent squint tabulated by Mr. Claud Worth,[1] only 134, or 13·17 per cent., began in the first year of life.

The age-incidence of the two affections, ordinary strabismus and the strabismus of polio-encephalitis, is well brought out by the following table :—

| | Age of Onset | |
|---|---|---|
| | Strabismus | Encephalitis |
| Under 1 year ... ... ... ... ... | 13·17 ... | 50·00 |
| Between 1 and 2 years ... ... ... ... | 18·30 ... | 7·14 |
| ,, 2 ,, 3 ,, ... ... ... ... | 24·29 ... | 10·72 |
| ,, 3 ,, 4 ,, ... ... ... ... | 18·58 ... | 25·00 |
| ,, 4 ,, 5 ,, ... ... ... ... | 11·11 ... | 7·14 |
| ,, 5 ,, 6 ,, ... ... ... ... | 7·18 ... | — |
| After 6 years ... ... ... ... ... | 7·37 ... | — |

From an examination of the foregoing figures we conclude, then, that the age-incidence of the disease under discussion offers considerable contrast with that ascertained by Worth for cases of ordinary convergent squint.

(4) *Other Illnesses.*—In fifteen of my cases, or 53·57 per cent., the squint was immediately preceded by some condition that might possibly have been the cause of the brain mischief. Thus the list included several zymotic ailments, as measles (2), scarlet fever (1), influenza (1), whooping-cough (1), and modified small-pox (1). A fall on the head was assigned as the cause of the squint in five children and a fright in one child. Circumcision had been performed shortly before squint was noticed in one child. Other suggested causes were teething (1) and "wasting" (1).

(5) *Associated Signs and Symptoms.*—The next point for examination is with regard to the frequency and nature of any general symptoms, such as might indicate an affection of the brain, in association with the oculo-motor signs. One point was very striking, namely, that in more than two-thirds of the patients (67·85 per cent. to be precise) the squint was not preceded, accompanied, or followed by any disturbance of the general health of a sufficiently pronounced nature either to arouse the solicitude or to impress the memory of the children's parents. In the

[1] "Squint: its Causes, Pathology, and Treatment," 1903, p. 41.

remaining eight cases, associated symptoms were "fits" or "convulsions" in five, combined with unconsciousness in two of these patients. In a sixth child there was a history of coma lasting for three days. A seventh patient was noted as being "sleepy, and wanting to lie about" coincidently with the appearance of the eye symptoms, and in the eighth patient, the latter were associated with torticollis. One interesting case calls for a word or two of separate mention. The patient was circumcised when aged 2 months, a little operation that was speedily followed by paralysis of one external rectus muscle. Six years later the right leg became paralyzed, apparently from acute anterior polio-myelitis.

Family predisposition to the disease was suggested by one of my cases, where an infant, aged 3 months, on recovery from "fits" and a period of unconsciousness, was found to have paralysis of one external rectus muscle. An elder sister of this patient suffered from paralysis of the left hand and arm at 3 months, and three months later, the right eye "got fixed in the corner."

(6) *Nature of the Oculo-motor Symptoms.*—This is scarcely the occasion to enter into anything like a minute analysis of the oculo-motor signs of the malady. It will suffice to say that any of the extrinsic muscles of the eyeball, either singly or in combination, may be attacked, although in three-quarters of my cases the external rectus was alone affected. Paresis was more common than paralysis of the muscle. I have never yet been able to satisfy myself that both external recti muscles were involved, although such may readily have been the case. The squint is born, as it were, fully fledged, an instructive contrast with the ordinary form, which tends to be occasional and to alternate between the two eyes at first and to get worse with the lapse of time. The squint of polio-encephalitis, in my experience, does not usually get more marked. It may, on the contrary, improve or even disappear as time goes on. In older children diplopia may be complained of, and a more or less characteristic carriage of the head may sometimes be seen. Nystagmus was noted in three patients. In one patient there was reason to think that the intrinsic muscles of the eye, the sphincter pupillæ and the ciliary muscle shared in the paralysis. In that patient, a woman 20 years of age, whose symptoms had followed a fall on the back of the head at 2 years of age, all branches of the third nerve to the extrinsic muscles of the eye were paralyzed, so that the only movements retained were outwards (sixth nerve) and downwards and outwards with rotation (fourth nerve). The pupil, considerably larger than that of the other eye, was motionless to light. The patient could read only large

print (No. 16 Jaeger) with the affected eye. The eye was somewhat prominent, and its palpebral fissure was wider than the one of the other eye. There was no affection of fifth or facial nerves.

## Diagnosis.

The diagnosis of the oculo-motor type of encephalitis may be simple or the reverse. No difficulty is likely to arise unless the external rectus is alone affected, which, as already stated, occurs in three out of four of the cases. An upward, downward, outward, or intermediate paralytic squint, suddenly making its appearance in a baby under 12 months, could scarcely be due to anything else than an acute affection of the nuclei of the nerves which supply the extrinsic muscles of the eye. Things are different when the external rectus muscle is alone involved. In marked cases, when the child is old enough to follow a bright object with his eyes, a defect will be found in the outward rotation of the squinting eye. The eye, perhaps, cannot be moved beyond the mid-line of the orbit. But it is commoner for the outward excursion of the affected eye merely to fall short of that accomplished by the sound eye. In milder cases still, or when the defect is of long standing, nothing more may be observed save a lack of smoothness in the lateral excursions of the eyeball. The affected globe moves outward with the consentaneous inward movement of the sound eyeball, but in a jerky fashion. "The eye drags," is an expression I have heard used both by mothers and by medical men. The eye may be said "to lose time," as it were, like a defective fine adjustment of a microscope. There is another sign that I have found useful. It is that when the child is told to look in the direction of action of the affected muscle, he instinctively turns not his eye, but his head, which is not the case, at all events to the same extent, when the corresponding muscle in the other eye is called into play.

Conclusive evidence is to be sought in an examination of the tiny bright images reflected from the corneæ when a source of light, such as that afforded by a candle flame or an ophthalmoscopic mirror, is held before the eyes. Under these circumstances the bright spot of light will occupy approximately the centre of the cornea of the unaffected eye, while in the other eye it will be displaced in a direction opposite to that of the squint. Thus, in convergence, the bright reflex lies somewhere to the outer side of the centre of the pupil; in divergence, to the inner side of that point; in upward squint, below the centre; and in

downward squint, above the centre. The extent of the displacement will be directly proportionate to the degree of deviation of the eyeball. For that matter, once we know the position occupied by the corneal reflex, it becomes easy to convert our knowledge into terms of the angular measurement of the squint for future reference. A scheme for this purpose has been drawn up by Hirschberg.[1] The method, although a little rough and ready, is adequate for practical purposes, especially in children.

An estimate having been formed by the surgeon of the degree of the "primary deviation," *i.e.*, the deviation of the squinting eye, he next covers the sound eye and gets the child to fix the light with the affected eye. When this movement is correctly executed, the sound eye, so to speak, takes on the squint. The degree of this so-called "secondary deviation" is next estimated. In ordinary concomitant strabismus the primary and the secondary deviations are equal, but in paralytic strabismus, such as that due to encephalitis, that is no longer the case. In those circumstances, for reasons that are so well known that they need not be explained here, the secondary deviation is bigger than the primary.

Having ascertained by examination of the corneal reflexes or by other means that an extra-ocular muscle is paretic, there may still be a doubt as to the cause of the condition if the history of the case be defective, as it sometimes is in hospital out-patients. Such a condition may in reality belong to the group of congenital paralyses, the commonest example of which is paralysis of the external rectus muscle in one eye or in both. I am not prepared to suggest any means whereby these two conditions can be distinguished in the absence of a trustworthy history of the case, unless it be by the electrical examination of the affected muscles, no simple matter when dealing with the eye of a young child.

## Conclusions.

(1) There is a particular form of paralytic strabismus in children which is due to polio-encephalitis.

(2) It is not uncommon, and is most frequent in children under one year of age.

(3) It is associated comparatively seldom with other symptoms indicative of a cerebral disorder.

[1] *Centralbl. f. prakt. Augenheilkunde*, Leipz., 1886, x, p. 5.

(4) Zymotic diseases appear to be important factors in its causation.

(5) Although the paralysis may affect any of the extrinsic muscles of the eyeball, yet in three-fourths of the cases the external rectus muscle is alone involved. The intrinsic musculature of the eye is seldom attacked.

(6) The common form of encephalic strabismus is very apt to be confused with the ordinary form of concomitant convergent strabismus.

## DISCUSSION.

The PRESIDENT remarked on the small number of cases which seemed to have been associated with acute anterior poliomyelitis. Recently the tendency had been to assume that poliomyelitis and polio-encephalitis were the same disease, varying only in their distribution, and that the inferior type might be limited to the nucleus of one cranial nerve. He showed one such case at a Society a few years ago, in which both the sixth and the third nerves were involved. He was not clear why Mr. Stephenson said his cases were paralytic in type as opposed to the ordinary type of convergent squint. He asked what was the prognosis, and what was the exact causation in those cases. Did Mr. Stephenson think they were due to toxæmia of the nerve-cells of the nucleus, which might be recovered from, or was there such a destruction that the paralysis was permanent, and followed by atrophy?

Dr. BOX said that for some time past he had thought that an explanation similar to that advanced by Mr. Stephenson might apply to certain cases of facial paralysis. It was not uncommon to find isolated paralysis of the facial nerve in which there was no indication of ear or throat disease. He thought possibly that they were nuclear paralyses, and that was supported by his having come across a case in which facial paralysis was accompanied by paralysis of the sixth nerve. He supposed Mr. Stephenson had included all cases in which there was no evidence of error of refraction or ocular defect, and had regarded them as due to encephalitis. There was some risk in such a grouping, and he assumed Mr. Stephenson would not say they were all of the same causation.

Dr. BELLINGHAM SMITH said he was about to raise the same point as Dr. Box had done. He thought there might be other reasons causing the paralysis. The author mentioned measles and small-pox, where possibly the lesion was thrombotic; also influenza, where neuritis might account for the paralysis. With regard to whooping-cough, he (Dr. Smith) had recently seen a boy 10 years of age who had that type of squint, and the squint followed a violent attack of coughing. He believed the cause was a small hæmorrhage. Hæmorrhage might also be claimed as the cause where such paralysis followed convulsions in pregnancy arising in digestive disturbances. It was common

also to have thrombosis in marasmus, another of the conditions mentioned by the author; while in scarlet fever the damage might be due to embolism. Injury to the head had also been mentioned, and the sixth nerve was not uncommonly implicated in a fractured base. Mr. Stephenson had stated that 50 per cent. of his cases occurred in the first year of life. The commonest congenital paralysis was that of the sixth nerve. There was no contraction of the antagonistic muscle, and no deformity was noticed until the child began to observe things, then the defect would be noticed by the mother, and perhaps regarded as of sudden onset. Some cases might possibly be attributed to polio-encephalitis—namely, as the author said, where there was a history of illness at some time, associated with coma, fits, and convulsions. He suggested that Mr. Stephenson had grouped a variety of conditions together under one heading, which could not all be attributed to one specific disorder —polio-encephalitis.

Dr. J. D. ROLLESTON said the only way to determine the nature of the condition would be by experiment—namely, injecting portions of the brain affected into monkeys. If encephalitis or poliomyelitis followed, the matter would be settled. Ivan Wickmann,[1] in his monograph on Heine-Medin's disease, which embraced paralytic forms, and abortive forms in which there was no paralysis, mentioned a pontine form in which, as in Mr. Stephenson's cases, the abducens nerve was more frequently affected than the oculo-motor.

Mr. STEPHENSON, in reply, said he was satisfied that the cases he had described were not ordinary concomitant convergent strabismus, such as was common in children. His grounds for that statement were: first, the sudden onset of the squint; and, secondly, the fact that the squint was paralytic. His paper alluded to the methods of distinguishing that form of squint from the ordinary form. Unless a case was well marked, the only way to differentiate was to examine the corneal reflexes. He did not contend that he was dealing with an absolutely homogeneous group, but he had given a name to the group in order to elicit discussion and criticism, which he believed he could claim to have done.

[1] "Beiträge zur Kenntnis der Heine-Medinschen Krankheit," Berlin, 1907, p. 48.

# Section for the Study of Disease in Children.

March 24, 1911.

Dr. EDMUND CAUTLEY, President of the Section, in the Chair.

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## Case of Infantilism with Polyuria and Chronic Renal Disease.

By H. MORLEY FLETCHER, M.D.

BOY, aged 6 years, is said to have not grown since the end of his first year. He is said to have always passed a large amount of urine, and to have taken large quantities of fluid (at 4 months as much as 4 pints per diem). Genu valgum developed at 5 years. Breast-fed one month, afterwards cows' milk. No other illnesses. Is the eldest child; has one sister aged 4 years, who is healthy. Mother had one miscarriage; she has phthisis.

The patient is very small, height 2 ft. 7 in., weight 21 lb. He is wearing clothes made for him when he was 2 years old. Intelligence very good. Teeth carious. Eyes natural. Heart and lungs normal. Abdomen large and somewhat distended, kidneys palpable (? enlarged). Blood-pressure, 75 mm. Hg. Double genu valgum. Testicles undescended. Passes from 40 oz. to 70 oz. of urine per diem; the average daily amount for the last three weeks was 59 oz. He drinks about 3½ pints daily. Urine usually colourless, occasionally slightly opalescent; specific gravity 1005; reaction neutral; 0·16 per cent. albumin, granular casts occasionally present, no glucose, pentose, acetone, or diacetic acid. Much indican present. Cammidge reaction negative. Cryoscopic examination, $\Delta = -0{\cdot}4^{\circ}$ C. Blood examination: Wassermann's test negative.

He has had occasional rises of temperature, probably due to ear trouble. He has gained only 3 lb. in weight during three months' hospital treatment, but no increase in height. The stools have always been normal. Administration of thyroid extract has had no effect.

The case is regarded as one of infantilism, associated with or due to chronic renal disease, dating from intra-uterine existence.

## Case of Infantilism with Thyroid Inadequacy (Juvenile Myxœdema).

By H. Morley Fletcher, M.D.

The patient, a girl aged 8 years, developed normally for the first two years. She walked and talked at the usual age. The labour was easy, and the mother in normal health at the birth of the child. The seventh of nine pregnancies, all the children alive now, except the third. Has had measles and pertussis. Pale, puffy, serious, rather old-looking face. Abundant hair, scalp scurfy. Skin dry and rough. Is very quiet, but takes an interest in her surroundings. Mental processes slow. Has been under thyroid treatment for nearly three months, and has considerably improved; she is more lively, and the skin is less dry, but she has not grown. Weight, 24½ lb.; height, 33 in.

DISCUSSION.

The President (Dr. E. Cautley) said these two cases were very interesting. In the first patient Dr. Fletcher's idea that it was a case of infantilism, associated with or due to chronic renal disease, possibly cystic disease, dating from intra-uterine existence, was a very likely one. The second case, he suggested, should be set down in the *Proceedings* under the head of Juvenile Myxœdema rather than under that of Infantilism, because there were so very few cases of the former on record, and this was a typical one. Seeing that the child had had measles and pertussis, it would be interesting to know whether either of these infective disorders occurred after or before the onset of the myxœdema. Most of the cases of juvenile myxœdema, in which a cause had been traced, were secondary to some infective disorder which had probably affected the thyroid gland.

Dr. Morley Fletcher replied that the child referred to in the second case had whooping-cough early in her second year, but he could not say how far the infective condition influenced the myxœdematous condition.

## Inherited Syphilis and "Blue Sclerotics."

By J. D. Rolleston, M.D.

Male infant, only child, aged 9 months. Father infected five years before marriage; had only a few months' treatment. Six months after marriage, and one year before the baby's birth, the mother developed

"a poisoned lip," probably a chancre, of which the scar is still visible, and had only local treatment. When 3 weeks old the baby lost all power in its left arm, but recovered use of limb in the course of a month without specific treatment. "Thrush at both ends" when 6 weeks old. When aged 5 months it was admitted to Grove Fever Hospital for nasal diphtheria. Condition on admission: Atrophic, fair-haired infant; weight, 8 lb. 7 oz.; constantly crying. Marked prominence of scalp veins; forehead prominent; umbilical and right inguinal hernia; crusts in right nostril; no eruption; spleen not enlarged; well-marked, uniform blue coloration of both sclerotics; irides grey; embryontoxon at margin of each cornea.

The mother and mother's sister, both fair-haired, present the same condition. The maternal grandmother, now dead, is said to have been similarly affected. The mother's two brothers are not affected.

The nasal diphtheria cleared up under 4,000 units of antitoxin, but K.L.B. persisted till the following February. November 19: Swelling and tenderness of upper end of left ulna; hydrarg. cum creta, ½ gr. b.d. November 23: Periostitis subsided; some erosions round anus. January 9: Paronychia of right ring-finger. January 12: Cries when left arm is touched, limb flail-like; temperature, 101° F.; stools loose. Hydrarg. cum creta reduced to ¼ gr. b.d., and pulv. Doveri ¼ gr. added. Undiluted citrated milk ordered. January 14: Left upper arm swollen; crepitus felt at junction of upper and middle third of humerus; temperature, 101° F.; arm put up in cardboard splint. January 16: Temperature normal. January 21: Hydrarg. cum creta increased to ½ gr. b.d., and subsequently to ½ gr. t.d.s. on February 4. January 28: Splints removed; good union; well-marked callus felt; active and passive movements of arm free. February 11: Callus no longer felt. Subsequent recovery uneventful.

On its discharge on March 9, 1911, the child was in good health, weighing 13 lb. 10 oz. The persistent crying soon ceased after the exhibition of Hg.

The principle features of interest in the case are the extra-genital infection of the mother, the spontaneous fracture of the humerus in the child, and the condition of blue sclerotics in three generations. Although Wassermann's reaction was not tried, the history of the case and the position of the scar make it practically certain that the lesion on the lip had been a chancre. Spontaneous fractures, or, to use Broca's [2] more accurate term, pathological fractures, are comparatively uncommon in syphilis, especially fractures of the shaft as distinct from separation

of the epiphyses, and still more exceptional is it for the fracture to be limited to a single bone instead of the lesions being multiple, as in most of the recorded cases. This was probably due to the adoption of specific treatment, as shortly after admission, before mercury had been given, the child developed periostitis of the ulna, thus indicating that the osseous system showed a special tendency to be involved. The symptom of persistent crying, to which attention has recently been drawn by Comby [4] and Sisto [12] as a phenomenon of inherited syphilis, was probably due to pains in the bones. The occurrence of the fracture during mercurial treatment was probably due to the doses being too small, as rapid recovery ensued on the increase of the dose.

The case is illustrative of the favourable course of pathological fractures in inherited syphilis provided suitable treatment is adopted. All authorities now hold this view, but Parrot [10], who first described syphilitic pseudo-paralysis, regarded it as a very unfavourable sign, as all his cases died.

If the history could be trusted, the same arm had already been affected when the child was 3 weeks old, and recovery had taken place without specific treatment. A similar case of spontaneous recovery from syphilitic pseudo-paralysis has been recorded by Cadet de Gassicourt [7], and Gouez [8] has collected five other cases in which improvement occurred before mercury was administered. It should be noted that the humerus is the most frequent site of pathological fracture in syphilis, as it was affected in twenty-two out of sixty-four such cases collected by Frangenheim [6].

The condition of blue sclerotics as a congenital anomaly, due to abnormal thinness of the membrane, seems first to have been described in 1841 by von Ammon [1], who stated that it also occurred in congenital heart disease. Histological examination was first made in 1903 by Dr. Leslie Buchanan [3], of Glasgow, who examined an eye so affected, which had been removed for an injury, and found that the fibres of the cornea and sclerotic were abnormally few in number. It was not until 1908 that blue sclerotics were first described as an hereditary condition by Peters [11], of Rostock, who recorded cases in four generations. He regarded the coloration as due to abnormally thin or abnormally transparent sclera. The same view was held by Mr. Sydney Stephenson [13] and Mr. Bishop Harman [9], who, in 1910, recorded its occurrence in five generations. In their cases, as in mine, the inheritance was through the females, and the complexion in general was fair.

It did not occur to me that there was any connexion between the fracture of the humerus and the blue sclerotics until I came across a paper by Dr. Eddowes [5], entitled "Dark Sclerotics and Fragilitas Ossium," in which he described some cases in which the two conditions were associated. Dr. Eddowes suggested that the transparency of the sclerotics indicated a want of quality or quantity in the fibrous tissue forming the framework of the various organs of the body, which therefore accounted for the want of spring and toughness in the bones. Dr. Eddowes has kindly informed me that he never even suspected syphilis hereditaria in his cases. Possibly the deficiency of fibrous tissue in the present case, as shown by the thin sclerotics, may have been a contributing factor, together with syphilis, in the production of the fracture. There was, however, no history of fragilitas ossium in any other member of the family.

A skiagram could not be taken at the time of the fracture, so that the exact nature of the lesion could not be determined.

REFERENCES.

[1] AMMON, F. A., VON. "Klinische Darstellungen der Krankheiten und Bildungsfehler des menschlichen Auges," 1841, Theil iii, p. 73.
[2] BROCA. *Gaz. des Hôp.*, 1876, xlix, p. 354.
[3] BUCHANAN, L. *Trans. Ophthal. Soc. United Kingdom*, 1903, xxiii, p. 267.
[4] COMBY, J. *Arch. de méd. des enf.*, 1908, xi, p. 64.
[5] EDDOWES, A. *Brit. Med. Journ.*, 1900, ii, p. 222.
[6] FRANGENHEIM. *Deutsch. Zeitschr. f. Chir.*, 1907, lxxxviii, p. 126.
[7] GASSICOURT, CADET DE. *Bull. et mém. de la Soc. méd. des Hôp. de Par.*, 1891, viii, 3me série, p. 102.
[8] GOUEZ. *Thèses de Par.*, 1894-95, No. 442.
[9] HARMAN, N. BISHOP. *Ophthalmoscope*, 1910, viii, p. 559.
[10] PARROT, J. *Arch. de Physiol.*, 1872, iv, p. 319.
[11] PETERS, A. *Klin. Monatsbl. f. Augenheilk.*, 1908, n.f.v., p. 130.
[12] SISTO, G. *Arch. de méd. des enf.*, 1910, xiii, p. 580.
[13] STEPHENSON, SYDNEY. *Ophthalmoscope*, 1910, viii, p. 330.

## DISCUSSION.

Mr. SYDNEY STEPHENSON said that the pedigree which he published last year extended over four generations of the family, and included twenty-one members infected with these curious "blue sclerotics."

Dr. F. PARKES WEBER asked whether the sclerotics in Mr. Stephenson's cases all had the uniformly diffused blue appearance which they had in the child shown by Dr. Rolleston, or whether some of them had that blotchy or patchy look, which was a remarkable feature in the little girl, aged $2\frac{3}{4}$ years, shown by Mr. Bishop Harman at the Section for the Study of Disease in Children

on January 28, 1910, and illustrated in the *Proceedings* (p. 67). Such a blotchy appearance was apparently due to some difference in thickness or texture between different parts of the sclerotic. In a young woman, aged 28 years, whom he (Dr. Weber) saw in May, 1910, the blue appearance was uniform over both sclerotics, as in Dr. Rolleston's case. The iris in each eye was brown. A brother, aged 30 years, was said to be the only other member of her family who had "blue sclerotics."

Mr. STEPHENSON said that Dr. Rolleston's patient was a very typical instance of the appearance in the family whose cases he had published. The colour was not exactly uniform. It was deeper in certain regions than others, but it extended as far back as one could see, although not with the same intensity.

Dr. ROLLESTON, in reply to Dr. F. W. Higgs, said that there was no evidence of any heart disease, and therefore no blood examination was made. The bluish coloration of the sclerotics in congenital heart disease was very much less than was present in the case he had just brought forward.

## Simple Atrophic Type of Myopathy: so-called "Myatonia Congenita" or "Amyotonia Congenita."

By F. E. BATTEN, M.D.

ROBERT S., aged 6 years, is the eldest of four children, the others of whom are said to be healthy and strong. He had pneumonia when 1 year and 4 months old, and is said to have had one fit a month later. He has never been able to walk, always weak, perfectly clean in habits, intelligent, and talks well. Admitted to the Children's Hospital under the care of Dr. Garrod, February, 1911. He is an intelligent little boy, talks well, and all movements of face and eyes are well performed. His arms and legs are thin, there is general wasting without localized atrophy or hypertrophy. Almost all movements can be performed so long as no strength is required. There is no winging of the scapulæ, the grasp is fair, and, if anything, the forearm muscles are relatively stronger than the proximal muscles, but this is accounted for by the less work they have to do. The boy can stand but cannot walk without support. He walks on "all fours" (fig. 1). He can raise himself into a sitting position, but can only climb into an erect position with the aid of a chair, and when standing he has marked lordosis. The boy shows most marked hypotonia (loss of tone in all his muscles); he can be "folded up" so that the trunk lies parallel to the legs (fig. 2). His

feet and hands can be dorsi-flexed to an unusual angle. The knee-jerks are present. The plantar reflex is flexor. Sensation is perfect. Electrical examination shows a marked diminution to faradic stimulation, but no polar change.

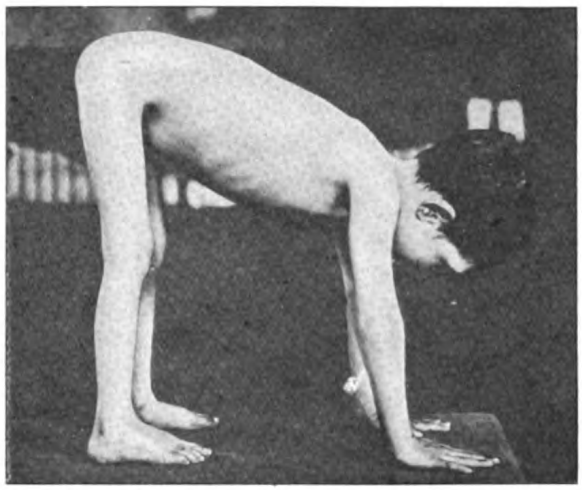


FIG. 1.

Simple atrophic type of myopathy. Photograph showing the position in which the boy walks on "all fours." He cannot walk in the upright position.

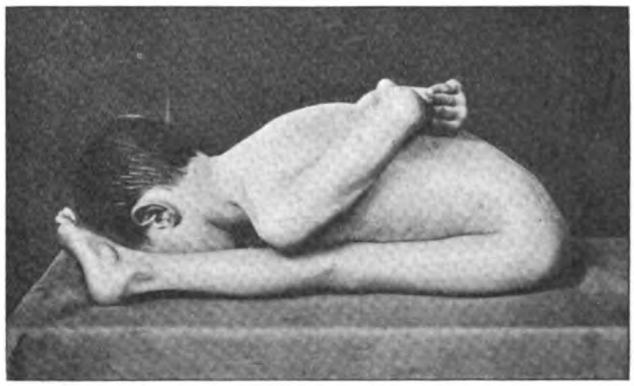


FIG. 2.

Photograph showing the boy in the "folded-up" position.

(For these photographs I am indebted to Dr. Frew, Registrar and Pathologist at the Children's Hospital, Great Ormond Street.)

The simple atrophic type of myopathy is characterized by smallness, lack of power and tone in all the muscles of the body without localized atrophy or hypertrophy of individual muscles or groups. This case illustrates these features well.

The case is strikingly similar to the second of three cases recorded by Haushalter.[1] It bears a strong resemblance to cases described under the title "Myatonia congenita" or "Amyotonia congenita"—that condition is not, however, regarded as a myopathic disease by Oppenheim and other observers.

## DISCUSSION.

Dr. GUTHRIE said that the case described as simple atrophic myopathy was the very type of case described by Oppenheim a few years ago as myatonia congenita, or amyotonia congenita. There were some who maintained that these were affections distinct from myopathy, but he agreed (and he knew that Dr. Batten was of the same opinion) that amyotonia congenita was a form of myopathy. The argument used by those who held the opposite opinion was that myopathy was not congenital. The answer was simply that here were myopathic cases which were congenital. Myatonia congenita or amyotonia congenita was in reality a congenital form of myopathy.

Dr. WM. EWART inquired whether Dr. Guthrie would specify the nature of the distinction which he recognized between the conditions of "amyotonia" and of "myopathy" to which he had referred.

Dr. GUTHRIE replied that there were very few post-mortems on record until quite recently, but it was practically settled that the condition found in the muscles in myatonia congenita was definitely that of myopathy, and distinct from muscular atrophy of spinal origin.

The PRESIDENT said that he was under the impression that Oppenheim described cases of amyotonia congenita as cases in which recovery could take place, and that some of the patients did recover. But he was doubtful whether in Dr. Batten's case of simple atrophic myopathy recovery was possible.

Dr. BATTEN, in reply, said that in regard to the distinction between cases of myatonia congenita and cases of myopathy, Oppenheim had laid stress on the fact that cases of myatonia congenita tended to recover, whereas cases of myopathy never recovered. Further, cases of myatonia congenita were said sometimes to come on suddenly; whereas a case of myopathy never came on suddenly. Dr. Batten said he knew of not a single case of myatonia congenita which had recovered. The child, as development took place, might indeed

[1] *Rév. de méd.*, Par., 1898, xviii, p. 451.

learn to undertake certain movements and show a certain improvement, but nobody had yet shown that recovery had occurred. If it could be shown that myatonia congenita did come on suddenly and did recover completely, then he would admit that myatonia congenita might be looked on as an entity, but until this had been done he should regard the cases described under that title as a group of the myopathies. Simple cases of loss of tone in rickety children might be classified as myatonia congenita. Such cases might and probably would recover. In reply to Dr. Ewart, he said that Holmes and Wilson had shown that the changes in the muscles in a case of myatonia congenita were exactly similar to those in myopathy, and that there was no change in the spinal cord.

## Syphilitic Osteitis of the Femur.

By P. MAYNARD HEATH, M.S.

BOY, aged 7 years. Twenty-two months ago he was struck on the left thigh by a large stone. He was not confined to bed by the accident, and remained well until three months ago, when the thigh began to swell. He was then noticed to limp in walking. There is a diffuse bony swelling of the left femur, involving the whole length of the shaft, but most marked at the junctions of its upper and middle thirds. The surface of the bone is smooth, and the muscles are not involved. No other bones are affected. The boy shows no other signs of congenital syphilis. He is the fourth child out of seven, of whom the two eldest died at twenty-four hours and three weeks respectively. The father had syphilis twenty years ago. He says he was treated with three mercurial pills daily for six months, and then with a solution of mercury for more than a year subsequently. The skiagram (*see* p. 104) shows diffuse osteitis of the whole shaft and neck of the femur.

### DISCUSSION.

Mr. KELLOCK said that the case was a valuable one, because it illustrated two important points. The condition had occurred subsequent to a definite injury, and was apparently the first manifestation of congenital syphilis. It had become more and more frequent to see children who at rather a late age showed the first signs of congenital syphilis. He wondered whether, or when, any manifestations would have occurred if the child had not received an injury. Could they say that this was syphilitic osteitis in the absence of all other evidence? Some time ago Mr. Battle showed a case in which the patient, a

child, had developed a large mass of callus round the femur as the result of injury. It was possible that in the present case the injury might have set up a quiet disease of the bone. The increase in length of the bone was a point of importance, as it rarely occurred except in cases of congenital syphilis. He agreed with the diagnosis of congenital syphilis, and thought that the absence

Syphilitic osteitis of the femur.

of all other manifestations, together with the fact that the condition was the result of an injury, made the case an important one.

Mr. LOCKHART MUMMERY said that there could be no serious question but that this was a condition of syphilitic osteitis. Both the skiagram and the "feel" of the child's limb betokened what they were accustomed to consider the characteristic of syphilitic osteitis. It was interesting that the condition should be an isolated manifestation of syphilis occurring so comparatively late

in life. He understood that there was well-marked syphilis in the father. He also agreed that the immediate cause of the onset was certainly the injury.

The PRESIDENT said that Mr. Heath had stated that there was no other sign of congenital syphilis. He wished to know whether the child's first molar teeth were perfectly normal, and also whether the past history of the child in infancy was at all suggestive of congenital syphilis.

Mr. HEATH, in reply, confessed that he had rather vague ideas as to the characteristics of the effect of syphilis upon the molar teeth. He understood that the child was delicate in infancy. The mother denied that he "snuffled," but that was rather a difficult point, as she was a Spaniard, and talked very little English. He believed she herself had had syphilis. The first two children died immediately after birth, the third was alive. The patient was the fourth. He had not had the opportunity of testing the Wassermann reaction in the mother.

## Deformity of the Cervical Spine.

By P. MAYNARD HEATH, M.S.

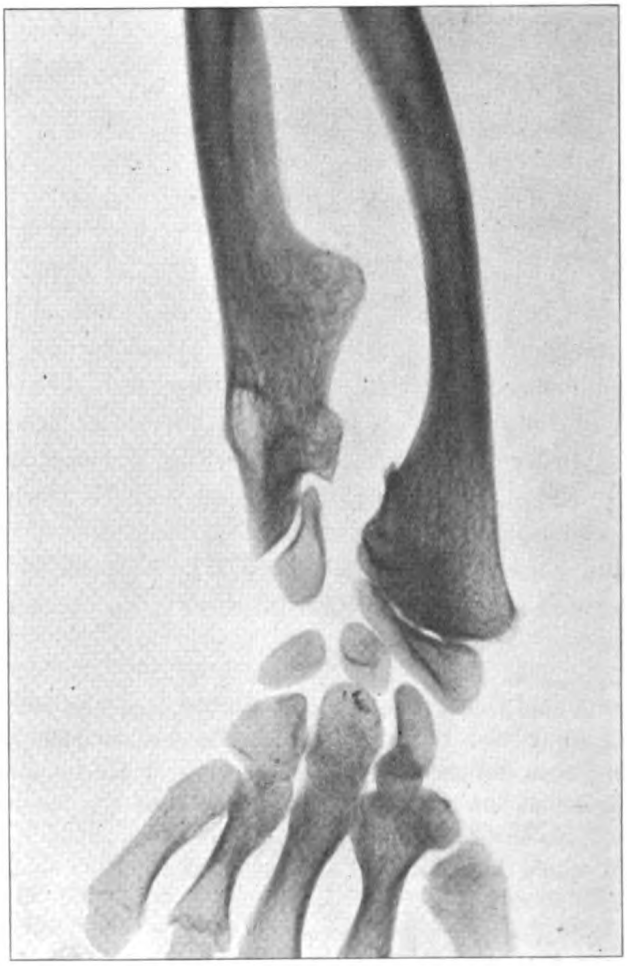
GIRL, aged 2½ years. The mother had noticed a lump in the back of the neck for five months. The child carries her head forward rather stiffly, but there is no real rigidity of the cervical spine. In the region of the sixth and seventh cervical spinous processes is a bony prominence. It is about 1 in. long and ½ in. broad. At the inner end it is attached to the spinous processes, and from these is directed downwards and outwards, in the deeper fibres of the trapezius muscle, towards the upper angle of the scapula. The outer end is unattached, and no band between it and the scapula can be felt. The scapula is not deformed, and is not elevated above its normal position. No other bony swellings can be felt.

Mr. KELLOCK said that there was a possibility that the mass of bone was the result of an injury at birth, an ossification in or around the spot where some muscle fibre had been dragged away from the spine. He understood that there was some difficulty at the birth of the child, and that the mother had to have an anæsthetic. No injury to the child, however, was noted. He thought the right treatment would be an expectant one—that the case should be left alone and watched.

## Multiple Exostoses.

By P. Maynard Heath, M.S.

Boy, aged 5 years. There is no history of a similar complaint in any member of the family, but a well-marked history of hereditary syphilis. The bony outgrowths are present in all the chief long bones, and at the wrist have given rise to the deformity seen in the skiagram.



Case of multiple exostoses. One of the exostoses, showing the resulting deformity of the wrist.

## A Case of Achondroplasia.

By FREDERICK LANGMEAD, M.D.

E. S., A GIRL, aged 10 months. The patient is a characteristic example of the condition. She was brought to Paddington Green Children's Hospital, because she makes no attempt to stand, and cannot sit up without assistance, although she is quite bright and intelligent, beginning to use a few simple words. The head shows the usual globular shape, is flattened behind, and somewhat projecting in front. Its greatest circumference measures 18½ in., and its vertical measurement from one external auditory meatus to the other is 12¾ in. The fontanelle is about 1½ in. wide. The root of the nose appears somewhat depressed. The face is proportionately small. The total length of the baby from crown to sole is 21½ in., the dwarfing being especially due to the shortness of the femora. The greatest breadth—i.e., from the tip of the middle finger of one hand to the tip of the corresponding finger of the other—is 18½ in., the upper arms being proportionately shorter than the forearms. The trunk appears unduly long, because of the stunting of the limbs, and measures 10½ in. The proportion between the proximal and distal parts of the limbs is shown by the following figures: Acromion to external condyle of humerus, 3¼ in.; external condyle of humerus to styloid process, 3½ in.; anterior superior spine of ilium to external condyle of femur, 4⅜ in.; external condyle of femur to external malleolus, 3¼ in.

The baby is well nourished, and in the upper arms and thighs the stunting of the bones has caused the soft tissues to be disposed in folds, with intervening sulci. Complete extension of the arm is impossible. The hands are short, the fingers radiating in the usual trident fashion, so that the third and fourth fingers cannot be approximated along their whole length, but if opposed at their bases diverge at their tips. There is marked hypotonia and looseness of joints, especially of the wrists. No lordosis has developed at present, an indication that it is compensatory, but there is, to the contrary, a definite convex curvature in the dorsi-lumbar region. The little toes are very short, and curved inwards. The ribs are beaded and the ends of the diaphyses are enlarged. An X-ray shows spreading-out of the ends of the diaphyses of the long bones in a fan-shaped manner, but no other change. There are no other abnormalities. The patient is the fifth of five children, her mother and father being each aged 35. The firstborn, a boy, aged 14,

is well; the second was stillborn; the third, a girl, aged 5, is well; the next was born prematurely. The mother says that her husband has short limbs, and that his sister and cousins are all very short, but I have been unable to examine any members of the family other than the patient.

DISCUSSION.

The PRESIDENT asked whether Dr. Langmead thought that the child had rickets in addition. He believed many of these cases in early life were regarded as rachitic because of the enlargment of the epiphyses and the costochondral articulations. The enlargement was always present in the hyperplastic type of achondroplasia. The condition of the spine in this child was, however, decidedly rare in achondroplasia and extremely common in rickets.

Dr. LANGMEAD replied that he did not think it was possible to say whether there was rickets in addition in cases of this, the hypertrophic, type.

## A Case of Myopathy (? Affection of the Facial Muscles).

By FREDERICK LANGMEAD, M.D.

THE boy was brought to the Royal Free Hospital for increasing weakness and difficulty in walking. The duration of the condition cannot be determined, since, according to the mother, he has "always been weakly and never strong like other children," but it has been particularly noticeable for the last six months. The difficulty in walking was first detected by the great effort he has to make to go upstairs, and now he is said to take about half an hour to climb a short flight. He soon gets tired if taken for a walk, and has sometimes to be carried home. If he falls down, according to the mother's statement, he "lies like that for a long time, not trying to get up, and if he does get up he never gets up properly." She also says, "He always looks miserable and never smiles." Certain groups of muscles show definite pseudo-hypertrophy. This is clear in the case of the quadriceps and calf muscles on both sides, of the hamstring muscles and gluteus maximus of the right side, and, to a less extent, of the infraspinati. Other muscles are atrophied, this change being apparent in the pectorales, trapezii, and latissimi dorsi. The serratus magnus appears to be functioning on each side, but there is some winging of the scapulæ. The humeral and forearm muscles are not definitely altered in size. There is some lordosis and a slightly rolling gait. He gets up from the floor without assistance and without much difficulty, but in the usual manner in this condition. The general nutrition is good, and

otherwise the boy is healthy. A point of special interest is whether the face muscles are affected. He is able to perform the usual facial movements, but his mother volunteered the statement "that he never smiles, and is always pouting." There is certainly a rather fixed expression, the mouth is always open, and the lower lip is a little everted. Apart from this, the case is characteristically one of pseudo-hypertrophic myopathy. Groups of pseudo-hypertrophied muscles are present, however, not uncommonly in the Landouzy-Déjérine variety. The facial muscles are reported as reacting imperfectly to both faradism and galvanism like the muscles which are definitely affected.

No history has been obtained of any similar condition in other members of the family.

## A Case of Secondary Optic Atrophy due to a (?) Cerebellar Tumour.

By O. K. WILLIAMSON, M.D.

H. S., AGED 7 years, presented himself at my out-patient department on February 28, 1911, on account of loss of sight, headache and giddiness, also wasting. It is stated that the symptoms commenced seven months previously, loss of sight being the first symptom; that the headache, which is frontal, and does not appear to be constant, has been worse since about the beginning of December last, but commenced one month after the loss of sight was first noticed. No history of vomiting or of fits can be obtained. It is stated that some years ago the boy had tuberculous glands in his neck.

On examination the pupils were seen to be dilated, and to react well to light. Mr. Juler, who saw the child on February 24, reports in regard to the eyes—vision: right, defective; left, $\frac{6}{60}$. Disks very pale, and of post-neuritic type of atrophy. Vessels of a fair size. Edges slightly blurred, lamina cribrosa invisible. No paralysis of cranial nerves. No loss of power of upper or lower extremities. Knee-jerks present. Right one perhaps rather brisker than left. Bowels constipated.

On March 14 it was stated that the boy when walking tends to fall to the right.

On March 22 hearing on right side was found to be defective; right knee-jerk somewhat diminished, left normal.

The marked post-neuritic optic atrophy associated with loss of sight and giddiness point to a cerebellar tumour (probably tuberculous in nature).

## The History of Infant Feeding from Elizabethan Times.

By David Forsyth, M.D.

The history of infant feeding is only a small corner of the large field of medical history, but its importance will hardly be gainsaid. With the wide-spreading interest that is now bestowed on the conditions of infancy, and with measures being taken on every side to check the ravages of infant mortality, a history of the cardinal factor in these problems should be both opportune and useful. It is, indeed, strange that the ground should never have been broken. Our ancestors, however, left few records bearing on the subject, and such as they made are incomplete and scattered. It was not their habit to concede much importance to childhood, and they rarely, even in their letters, preserved for us any of those details of infant life which, commonplace enough to them, would have had so full an interest for us.

To go back to the early fifteenth century, we find that the "Booke of Nurture," "The Babees Book," and the "Booke of Curtasye," which recount even the most intimate particulars of the adult life of the period, contain not a word that is germane to our purpose. The earliest threads connecting the customs of the Middle Ages with those of to-day are not picked up in this country until the sixteenth century. From this time onward our chief information is derived from medical writers. The first of these works was issued abroad in 1487 by Paulus Bagellardus. The earliest English book, however, appeared in the reign of Elizabeth when, in 1567, Thomas Faier published an unpaginated, black-letter volume, "The Regiment of Life," the third and last section of which is titled "The Booke of Chyldren." Though Faier thus pointed the way in this country others were slow to follow. Under the Stuarts only two or three authors continued in his footsteps. In the Georgian period, however, medical interest in the subject began to awaken and, during the eighteenth century, a dozen or more books appeared. The output doubled in the first half of the nineteenth century, and between then and now attained such dimensions that it is difficult to say what aspect of childhood is without a special library of its own.

Even the earliest of these books contain some account of contemporary methods of infant feeding detailed enough at any rate to allow

the subject to be sketched in outline pretty accurately. But while at each period the authors describe the customs of their day, they naturally do not, because they cannot, explain the factors that were helping or retarding the evolution of their practice. Yet in the broad principles that have shaped our present-day methods lies the chief interest of the subject. Our twentieth century methods, be it understood, are not of twentieth century make. They are covered with the finger-marks of old-time gossips and dented with the prejudices of half a dozen centuries. If history told us nothing more than this it would still teach us that to-day we are watching a passing stage of a developing subject. It should, however, do more than this; by tracing the route we have already travelled it points the direction towards which we are moving.

Although describing their own experience, these medical writers are, of course, silent if we ask why other and obviously better methods were not used. Artificial feeding, for example, as a substitute for the breast is not even mentioned until the eighteenth century, and has filled its place only within the last fifty years. Why? For answer we must go to another source of information—to the social records of the common people. Clean food is the essential item in healthy infancy, and contamination comes from bad social and domestic surroundings; therefore, by studying the social conditions in each century we are likely to find an explanation not only of the changing customs of successive periods, but of the practical difficulties that for so long held back any improved methods.

Yet a third, though meagre, source of information is open to us. Now and again a collection of family letters that has survived to the present day throws a momentary gleam of light into an old-time nursery. All too rarely, however, do these occur. Fathers, and even mothers, when corresponding seldom mentioned their children except in formal terms. Beyond exacting from them an implicit obedience and an elaborate ritual of respect, they allowed themselves to show no great interest in the little incidents of their children's daily lives.

## Elizabethan Methods.

The current of social progress flowed only sluggishly in the Middle Ages, and we are probably safe in assuming that the lines on which infants were reared had altered little, if at all, during the two or three centuries before Elizabeth. The Tudor nursery was essentially the

same as the Plantagenet, and though until the sixteenth century we are not allowed even a momentary peep into this quarter of the house our loss is of no great consequence. In those days method was governed by tradition and each generation accepted the teaching handed on by the last.

### *Breast-feeding.*

Breast-feeding was practically the only means of nourishing a young child. Feeding-bottles had not been invented, and the artificial foods were limited to bread and pulse. Cow's milk is not even as yet mentioned in this connexion. Luckily for itself the Elizabethan infant was given no choice but the breast either of its mother or a wet-nurse. The particulars of breast-feeding that have come down to us are sufficiently instructive. In the fifteenth century, as Paulus Bagellardus tells us, a mother customarily suckled her child for two or three years. This seems a long time to us, but among many of the less highly civilized nations of to-day the same practice may still be found.[1] Indeed, as we shall learn, the period of suckling has been steadily growing shorter from the Middle Ages until now, when it lasts only one-quarter the time mentioned by Bagellardus. This fact, which is quite clearly established by the succession of writers on children, is not one to be lost sight of.

Thomas Faier has many quaint remarks on infant feeding, but does not speak of any artificial means. He sums up the whole subject, which to him lay between mother and wet-nurse, in a sentence which for simple truth and feeling could not be improved: "Wherefore it is agreeable to nature," he says, "so is it also necessary and comly for the own mother to nourse the owne childe." A sentiment as appropriate to-day as then, and as unacceptable then as to-day to the mothers who found that by indulging it they interfered sadly with their social amusements. Even in Faier's day numbers of women who could afford it were glad to shift their maternal duty to hired wet-nurses. Indeed, it is not easy to realize at the present time when wet-nurses are almost as rare as the once familiar chrisomes, without which no infant was baptized, how widely they were in demand in previous generations.

### *Foster-mothers.*

The foster-mother, of course, dates back beyond the records of history. Probably the professional wet-nurse made her appearance very

[1] As, for example, the Greenlanders and the Japanese.

early. Certainly she had already gained her position by the sixteenth century, and maintained it successfully during the three hundred years until her final decline and fall. Until the nineteenth century, when the sucking-bottle, a kind of pocket wet-nurse, was her undoing, she had no serious rival. Her calling was securely propped up on one side by the dangers of hand-feeding (of these more anon), and on the other by the growing disinclination or, it may be, physical incapacity of an increasing number of women to suckle their children. When wet-nursing first became the fashion it was opposed on much the same grounds as hand-feeding is to-day. Contemporary moralists began to shake their heads over this side of degeneracy. They solemnly reminded each other and the world generally how Tacitus, just before Rome fell into decay, lamented that grave matrons, who in former times used to suckle their own children, now gave them over to Grecian slave girls, and they prophesied an impending judgment on their own race.

Their vaticinations, however, fell on deaf ears, and the wet-nurses continued to flourish. Around their calling soon gathered a whole cluster of superstitions. If (so it was said) you hired a woman who was sluttish or evil-tempered your child would suck in her vices with her milk. Was she red-haired? Then be sure her pap will engender a treacherous mind in him. A slight indiscretion in her diet—"salt and eygre meates" were enough—and the sharpness of her milk will make him break out in scabbiness or itch. Some of these beliefs are not quite dead even now, and they illustrate very well the conservatism that has always wrapped up every detail of nursery life. When we go back four hundred years we find not only similar beliefs all the while, but we catch glimpses now and again of the evidence on which they were reared. We find that some of these mysterious properties of human milk were based, scientifically enough, on the records of supposed observations on animals. To anyone who, like Faier, accepted these accounts, the conclusions to which they pointed were irresistible.

"I intend," he says, "to write somewhat of ye nourse, and of the milke, with ye qualities and complexions of the same. And Phavorinus ye Phylosopher (as writeth Aulus Celius) affirmeth yt if the lambes be nourished with the milke of goats they shall have course wolle, lyke the heare of goates: and if kiddes in like māer suck upō shepe, ye heare of them shalbe soft like wolle. . . . . We se lykewise in herbes and plantes . . . . if they be put into unkīd earthe or watred with a noughtye and unholsome humur, either they come not up at all or else they will degenerate."

With this striking evidence from comparative physiology before him Faier could not be unimpressed by the lamentable results that might follow a careless choice in the matter of a wet-nurse—the very thought of a cow would be too direful.

"Ye muste be well advised," he concludes, "in taking of a nurce, not of ill complexion and of worse maners, but such as shal be sober, honeste and chaste, wel fourmed, amiable and chereful, so that she may accustōe the infante onto mirthe, no drunkard, vicious nor sluttish, for such corrupteth the nature of the child."

### *Sixteenth Century Baby-farmers.*

Wet-nursing, therefore, was not without its perils. The nurse, however, knew more ways of harming a foster-child than by her milk. Many Elizabethan mothers, unwilling or unable to tend their children, would send them to nurses in the country. Generations before the Infant Life Protection Act had spread a shielding hand over helpless infancy, the baby-farmers were plying their evil trade. And, if the contemporary parish registers are any guide, they appear to have carried it on as efficiently in the sixteenth century as in the late nineteenth century. Thus, from the year 1586, the register of SS. Peter and Paul, Mitcham, contains repeated entries of the deaths of "nurse children." Under the date March 25, 1595, we read that "francis Tailor a Commō keeper of children was buried." In the register of another parish we find the entry, "1558, May 18, buried Lucas, a Londoner's Child kept by Henry Wells." In the Petersham register we can read, "Eleezabeth Gardner a nurse Child of Goody Tanners was buried," and, a few weeks later, "Another Nurse Child of Goody Tanners was buried."[1] Be it noted that men as well as women made a living out of these nurse-children. The female baby-farmer is not wholly unnatural, but we shudder when we speculate on the motives that would lead a man to take in babies for a livelihood.

### *Artificial Feeding and the Sanitation of Tudor London.*

Apart from any question of baby-farming, infant deaths were common enough of course from natural causes. A civilization that knew nothing or next to nothing of the special dangers of early life, was bound to suffer a heavy wastage of infants. This was the case in

[1] "Parish Registers," T. F. Thiselton-Dyer, 1898.

the sixteenth century, and yet artificial feeding, which is one of the most prolific causes of disease and death, was not practised. No doubt Favorinus, with his goat and sheep stories, frightened many others besides Thomas Faier. If a lamb grew a beard from sucking a goat, what fate would befall a child fed on the milk of a cow? This question, we may be sure, was duly debated, and as we have seen, the claims of cow's milk are not even considered.

It is difficult, however, to believe that if milk had really been a suitable food in those days, it would have been kept in disrepute by the warnings of an obscure philosopher. There must have been graver objections. These could hardly have been connected with the facilities for its supply, because even in London the fields reached up to the City walls, and no dwelling was more than ten minutes from pasture-land. Yet we need only picture the conditions to which artificial feeding would have been exposed, especially in townships, to understand why cow's milk held no place in an infant's diet.

London, for example, then stretched from Ludgate to the Tower and from London Wall to the Thames. This small area was covered with a meshwork of narrow lanes and streets, across which the projecting upper stories of the wooden houses nearly met. Roadways and paths were badly kept, while laystalls and stinking heaps of refuse encumbered every quarter. There were latrines, but no drains. At the back of every house stood a cesspool.[1] Amid these surroundings lived a population which, even before the sixteenth century, had become too numerous for the City, but was prevented from spreading beyond its walls by the ecclesiastical owners of the surrounding manors. To make matters worse, Elizabeth, who had no wish to see London any larger, prohibited any new buildings within the walls.[2] Overcrowding was the result, and from a royal proclamation of 1580 we learn that in the poorer quarters there were "great numbers of people inhabiting in small rooms . . . heaped up together and in a sort smothered."[3]

Within doors the sanitary condition was no better than in the streets. Writing to Francis, the physician to Cardinal Wolsey, Erasmus describes the filthy state of the dwelling-houses. The floors, he says, were commonly of clay and were strewn with rushes, beneath which lay,

[1] "London in the Time of the Tudors," Besant, 1904.

[2] The annual Bills of Mortality were first published by Elizabeth in the hope, it is said, that by making known the risks of living in London intending residents would stay away.

[3] "Social England," H. D. Traill and S. Mann, 1903, iv, p. 197.

unmolested for years together, an ancient collection of spittle, beer, decayed fish and other refuse even more disgusting.[1]

Filthy streets, overcrowded houses, decaying refuse in the living-rooms; these are the conditions that make artificial feeding impossible. Further, we must remember that the virtue of boiling their cow's milk was not only unknown among all classes, but was even denied by the faculty. Popular prejudice indeed held that boiled milk was actually injurious—a belief that had not been eradicated even in our own generation. To complete the picture we must add that bodily cleanliness was the lot of few babies, even of the highest in the land.[2] Parents who rarely if ever took a bath were not likely to attach much importance to washing their children; besides, what nurse could be bothered to unswaddle a babe—stays, swathes, rollers, fillets and bands—every time it needed attention?

## Stuart Methods (Seventeenth Century).

Although introducing many comforts and improvements in their domestic life, our Stuart ancestors appear to have shown little or no originality in dealing with their children. The daily life of their infants was still regulated by the old traditions. Even common-sense was not allowed a hearing. So soon as a child was born they duly salted its body (in accordance with the venerable teaching of Galen), and, by tight bandaging, crushed its head into a fairer shape than Nature commonly favours in the early days of life. Next they bound it round and round in swaddling-clothes, lest, so they feared, by leaving it any freedom its bones might grow awry or its body come in pieces.

[1] "Tum sola fere sunt argilla, tum scirpis palustribus, qui subinde sic renovantur, ut fundamentum maneat aliquoties annos viginti, sub se fovens sputa, vomitus, mictum canum et hominum, projectam cervisiam, et piscium reliquias, aliasque sordes non nominandas." (Quoted in "Early English Meals and Manners," edited for the Early English Tract Society by F. J. Furnivall.)

[2] In this connexion the following case recorded in Harris's "De Morbis Acutis Infantum," is interesting, even though it dates from a century later:—

> "Observatio III. Unicus Filius Illustrissimi Comitis Pembrokiensis, septemdecim septimanas natus, Torminibus ventris, dejectionibus Viridibus, Aphthis, Inquietudine perpetuâ, nec non subsultibus membrorum cerebrò recurrentibus, incipiente Februario, laborabat. Aures, quibus madidus quidam humor (pro more infantum) copiosè effluere solebat."

The parenthesis speaks volumes. This easy belief that the eczema which comes behind unwashed ears is a natural attribute of the young died hard. As late as 1783 we are told that "in most infants, sooner or later, there is a discharge from behind the ears, which at first oozes out in the form of a sweat."

The only exercise they allowed it was a few minutes dandling in the air every day. When months later they at last set it free from its trammels they busied themselves in thwarting its natural development in other directions. If it attempted to master the difficult problem of balancing itself on its legs they thrust it up to its armpits into a go-cart.[1] No sooner had it emancipated itself from this encumbrance and begun to enjoy the delights of walking unaided than they hitched it by its shoulders to a pair of leading-strings. At every stage their idea seems to have been to go one better than Nature.

### *Infant Mortality under Charles II.*

Fortunately in matters of feeding necessity still kept a firm hand on them. The old method happened to be the method of Nature and they tried no experiments. The mother and the wet-nurse remained the only alternatives. With unclean houses and insanitary towns hand-feeding was still a deadly undertaking, and therefore the possibilities of artificial methods were hidden from them.

Indeed if their sanitation had altered at all since the previous century the change had not been for the better. The London of Charles II until after the Great Fire was practically the London of Elizabeth. Still the evil surroundings of the dwelling-houses, the heaps of filth up and down the streets and the laystalls piled with muck without the gates. In one respect, however, the City had become more unhealthy. In spite of the ravages of disease—sweating-sickness, plague and small-pox—the population had grown denser than ever. Elizabeth, as we have seen, set herself against the building of new houses, and her efforts were renewed in turn by James I, Charles I, and Cromwell. Between 1583 and 1661 continual though not always successful efforts were made to this end. Long ago crowded to suffocation, the inhabitants could now be held back no longer. Bursting out from the City, they began to swarm along the river bank. Even here, however, they were pursued by the ineffectual prohibition of James I, but, as the outlying liberties were beyond the jurisdiction of the Mayor and Council, they built as they pleased in utter disregard of cleanliness and health. Thus it came about that four-fifths of the population of London were crowded into the alleys and courts of out-parishes such as Wapping, St. Olave's, Lambeth, Whitechapel and Spitalfields.

[1] Not, of course, the go-cart familiar to the present generation, but a walking-chair not unlike those sometimes used for patients whose legs are partially paralysed.

If the City itself was insanitary, these liberties and out-parishes were worse and the infants suffered proportionately. By the time of the Restoration the infant mortality had become terrible. Two-fifths of the total deaths were of children under two years. In some years more than half the births were wiped out by infantile disease. When a hot summer came and the stench of the offal rose up off the streets the children died like the flies that swarmed in the crowded tenements. We read how in each of the hot summers, 1669, 1670 and 1671, diarrhœa alone added 2,000 to the bills of mortality in eight or ten weeks.[1] Even among the better classes infant life was hardly more secure. The occasional references to the subject that we find in private letters of the Stuart period show plainly enough that a mother expected almost as a matter of course to pay a heavy tribute from among her little ones. No doubt the boy-girl marriages that were the fashion implied a great ignorance on the part of the parents,[2] but for the principal cause we must still look to the want of sanitation.

### *Suckling and Weaning.*

Accordingly we are not surprised that no mention is made of artificial feeding. Though John Peachey, who published his "General Treatise of the Diseases of Infants and Children" in 1697, devotes a special chapter to "dyet" in early infancy he has not a word to say on this aspect of it. Neither by direct statement nor by implication does he allow us to suppose that hand-feeding was even known to him. It is noticeable, however, that though the choice still lay between mother and wet-nurse, the latter was extending her sphere of activity.

Peachey gives some account of both these methods, but of practical details of any real value he has unfortunately few to offer. He warns his readers, as Faier did before him, to be careful in the choice of a wet-nurse; above all she "must be merry and cheerfull, and smile often to divert the Child." On the question of weaning he is more interesting and deserves to be heard, if only as the first author to give

[1] H. D. Traill and J. S. Mann, "Social England," 1903, iv, p. 647.

[2] The results of bad feeding were evidently not uncommon among the upper classes, if the following extract is any indication. It is from a letter to Harry Verney, in exile, from his wife who had returned to England to look to his affairs: "I must give thee some account of our babyes heare. For Jack his legs are most miserable, crooked as ever 1 saw any child's, and yett thank god he goes strongly, and is very strayte in his body, as any child can bee; and is a very fine child all but his legges."—"Memoirs of the Verney Family."

prominence to this topic. Following his example, almost every medical writer since his day has dealt with it more or less prominently. He begins by stating that a vigorous child is able to leave the breast earlier than a weak one and therefore that there is no fixed time for weaning. On an average, however, a child should "suck a year and a half to two years." Already, therefore, the period of breast-feeding is being shortened and the maternal responsibility lightened. Age, however, is not the most important factor. The chief consideration is the teeth. "The Child must not be weaned before it has all its Teeth." This was to be the golden rule. At the present day of course no one could be found to subscribe to it. Even as a seventeenth century practice it is a little surprising when we remember that rickets with its notorious effect on teething had appeared in the West of England as a new disease scarcely fifty years before Peachey wrote. If he had any doubt himself it was, characteristically enough, not on this account, but in recalling an instance from the classics. Pliny, in his "Natural History," mentions one Marcus Curius Dentatus who was born with teeth. Such a child, as Peachey saw, might cause no little trouble to the perplexed physician who wished to conform to the rule.

### *Weaning by the Moon.*

But even assuming a full complement of teeth, the weaning was not to be lightly undertaken. In the first place there were astrological influences to be consulted. Wise people held (and not without reason, says Peachey) that a child must not be weaned with the moon on the wane. Better to wait until the moon was increasing, and by preference the increase of the spring or autumn moon. Another difficulty was the dislike that a child who had suckled for so long showed to strange foods. To overcome this a homely, if nasty, remedy is recommended, namely, to smear the mother's nipples with wormwood or aloes.[1] If by this means the child, now two years old, was successfully prejudiced against the natural source of its nourishment, the choice of its artificial foods was easy enough. "Pape" and chicken broth should be the earliest additions, and not till later should bread, milk and "pulse boyled" be allowed. About the same time flesh "of easy digestion and good juice" might be given. With this, however, some difficulty in

[1] In the early nineteenth century they had found, in addition, that garlic or asafœtida was no more savoury to an infant's palate than wormwood. Best of all, however, was the ingenious plan of painting the nipple with ink or surrounding it with black wool.

mastication must be anticipated. Here again Peachey is ready with homely advice. The meat, he recommends, should be "first chew'd by the Nurse."

*Weaning and Teething.*

These were the methods of 1697. The only item that need be emphasized is Peachey's reference to the teeth in connexion with weaning. Here for the first time we find it laid down that the period of suckling is to be reckoned in terms of milk-teeth. Doubtless the old writers, no less than the modern, met with some difficulty in providing a reason, other than empiric, for setting a precise limit to this period. If eighteen months, why not twenty-four? If nine, why not twelve? While we to-day insist on nine months as a full allowance, they recommended two years; yet it is not very clear how far reason is on the side of either of us. To John Peachey, however, the custom of his day would not unnaturally suggest its own explanation. Children were then kept at the breast for a couple of years, and he knew, of course, that they spent the same time in cutting their milk-teeth. What more likely than that he should associate the two facts? Until the child had all its teeth its mouth was not properly equipped for chewing, and until Nature had provided a full complement she could hardly intend solid meats to be taken. Two years, therefore, would seem the natural limit.[1]

This point deserves to be noted because the principle here laid down by Peachey (or, quite possibly adopted by him from others) became generally accepted, and for the next two hundred and fifty years is given prominence by successive generations of writers. Yet passing through many hands and gradually transformed by popular custom, it emerges in the early nineteenth century as teaching the necessity of weaning when the *first* teeth in each jaw have been cut, that is to say, about the seventh to the ninth month. A few years later the mention of the teeth is omitted altogether, but the period seven to nine months is retained, and is copied from book to book until the present day.

[1] In this connexion it is interesting to recall that in the Bills of Mortality children under 2 years were grouped in a separate class. When the bills were superseded by the Registrar-General's Reports the custom was preserved. Why this distinction was drawn in the first place has never been explained, so far as I can find. Children under 2 years, however, are precisely the children who are teething. May not this have been the explanation? Teething used to be looked on as the most important feature of early life—the process was obvious to the most casual observer—and we know that for many centuries it has been credited with half the catalogue of infantile maladies. Peachey, therefore, in choosing it as the basis of his feeding, was only adopting a popular belief.

## Georgian Methods (Eighteenth Century).

The medical practitioner of the early eighteenth century, whether physician, apothecary or barber-surgeon, filled any but a distinguished place in the history of his profession. Bringing to his work more superstition than knowledge, and more credulity than experience, he was hardly one to seek, still less to effect, any material improvement in the methods of his day. In point of fact, we have to wait until near the end of the century before we see the first faint light of intelligent scientific inquiry turned in the direction of infant feeding. About this time, however, there was an awakening from which began the slow development of the subject which has led to our present-day ideas and methods.

Even early in the century, however, and without waiting for professional guidance, changes were in progress among the people. In the main a continuation of those we have traced in the seventeenth century, they tended still further to supplant the mother by the wet-nurse. Before long this tendency is carried to its next stage. If the mother could be dispensed with, why not the wet-nurse? Why not avoid the inconvenience inseparable from these women by employing some food other than human milk? Artificial feeding, we now find, gains a recognized place, at first side by side with breast-feeding, later as its substitute.

To begin with we have to note a still further curtailment of the period of suckling. Tradition died hard in this connexion, and it is amusing to read how timorously the old beliefs were assailed. The number of the milk-teeth remains the criterion, but now a child need not wait for a complete set. If it has "almost all" its teeth it may be weaned. The anonymous "Eminent Physician" of 1729, who ventures, even thus circumspectly, to improve on old Peachey's dictum, seems a little uneasy at his temerity and adds, as saving clauses, "a stomach for solid Food and good Health." Given these three points a child may now be weaned at eighteen to twenty months. Since Peachey had advised eighteen to twenty-four months, the cautiousness of the change is apparent. Indeed, still further to guard himself, the eminent physician warns his readers that if the child has not cut his teeth even at the end of the two years, and is nevertheless weaned, "he will run a great risque of his Life."

### *Water-Pap and Mixed Feeding.*

It is pretty clear, however, that this concession did not go far enough to satisfy popular demands. If breast-feeding was to remain so lengthy

a business, then let it be supplemented in the later months at any rate by other food. Milk of some sort might be available, but it usually set up serious illness; and besides, while any doubt remained on the point, what mother would risk giving her child a dewlap or a goat's beard? And yet with cow's milk ruled out little choice was left. By the middle of the century, however, the difficulty had been solved, for in 1756, we read that "when a Child sucks, it is usual to feed it with nothing but Water-Pap, that is, Bread and Water boil'd together."

Even when no breast-milk was available, the objections to cow's milk were so general that mothers gave it unwillingly—"nay, some give their children Water-Pap only." The combination of breast-milk and water-pap became the popular practice. It was not only relatively safe, but it freed the mother. A few years later the fashion had extended and children were then given water-pap as soon as they had bred their first tooth. The breast was not withdrawn altogether until the child was two years old, but for most of this time the mixed feeding was followed. On the whole the practice was probably not unsuccessful. Certainly it protected a child from many grave dangers.

Some authorities, however, took exception to bread and, in place of of it, recommended a pap made of "baked flower." The baking was held to be an important procedure. Without it the flour "will produce a crude Chyle, a great deal of which not being changed into Blood, the less serous part goes to the kidneys, where stopping, it grows thick and turns to Stone or Gravel." We to-day still insist on baking our flour, but we have forgotten why it was originally enjoined.

### *Sugar, Turtle-doves and Beer.*

These two artificial foods, bread and flour, evidently supplied a long-felt want and proved so successful that others were pressed into use. Weak broth or beef-tea might be given with the first milk-teeth; with the second the wing of a boiled chicken, minced. More noteworthy still, a sweetening agent was for the first time accepted as a health-giving ingredient of an infant's diet. Lisbon sugar, so the authorities held, might be added to a thin panada of bread boiled in soft water. We can imagine how this new delicacy suited the palates of a young generation who had experience of nothing more savoury than bread-and-water pap. Many of the older generation, however, discountenanced these innovations, if we may judge by the opinion of Mr. Nelson, a worthy apothecary of the time who wrote on children. "What is more common," he

demands with a profusion of capitals that seems to reveal his choler, "than to give young Children Lumps of Sugar to eat, yet what more erroneous? Every Day's Experience shows us how wrong the Practice is: it vitiates their Taste; creates in them an unconquerable Fondness for it, even to a Degree of Vulgarity; and manifestly clogs their Stomachs." We need not doubt that his opinion was an honest one, for he probably stocked Lisbon sugar among his drugs. But what, we may ask, has the modern physiologist, with views on the importance of carbohydrates to growing tissues, to say to the vulgarity of the habit?

Warnings such as this could not check the growing customs. The widening choice of food during the first months of life led to a freer and even fanciful selection for children after weaning. In addition to water-pap, panada and broth they now began to have French bread, Uxbridge rolls and even hashed flesh, provided it came from a delicate animal. Recommended as particularly suitable for newly weaned infants we find turtle-doves, larks, thrushes and ortolans. Strangest of all, however, in our modern eyes are the views of the period on alcohol for babies. "Let Children," we read, "after the first year, wash down their victuals with light clear Small-beer." This, too, from our conservative apothecary. On this topic, however, he was voicing the opinion of the majority. Dr. Underwood, a capable and enlightened observer whose work we shall consider later, advised a little red wine for children when they began to walk. It prevented the rickets. Struve, a German writer on children, well known in his time, is approvingly quoted (as late as 1827) as recommending the following after weaning: two or three beaten egg-yolks stirred into a quart of beer, boiled and sweetened; "of this the child may take small portions several times a day."

### *The Wet-nurse: Her Zenith and Decline.*

Side by side with these changes by which the mother was placed still further in the background, the employment of wet-nurses was extending. Some of the old superstitions had crumpled away, but many still flourished. Among the latter, for example, was the ancient belief in the transmission of qualities of temperament from nurse to child. In solemn proof whereof we are given the story of the Queen of France who, solicitous of the welfare of her infant, devoted both time and energy

[1] The same belief was, perhaps, responsible for the old custom of choosing a Welsh wet-nurse for each Prince of Wales. The custom is said to have survived until the time of Charles I.

to suckle him herself. One day, however, she surprised a great lady of the court giving the babe her breast. Horrified and indignant, the Queen thrust her finger down the child's throat, and he, perceiving (so it almost seemed) the danger to which he had so rashly exposed himself, rid his stomach of the illicit meal, thus preserving his royal humours from contamination with merely aristocratic virtues and providing an object-lesson to all and sundry of lower degree who might look too lightly on wet-nursing.

Unfortunately as the demand for wet-nurses increased a serious evil followed in its wake. When a woman of the lower classes was hired to look after a lady's child, her own infant of course was deprived of its natural food. Being herself unable to afford the services of a wet-nurse, her luckless child was dependent on hand-feeding alone. Before long its life was probably sacrificed. These deaths became very numerous, but were little heeded until two philanthropic medical men [1] urged the matter on the attention of "families of wealth and rank" in order to obtain funds to open an institution where the children of wet-nurses could be looked after. Though an excellent idea, it touched only one aspect of the evil. During the eighteenth century it became the fashion to choose as nurses the mothers of illegitimate children, especially those who had fallen for the first time. Such women were generally young and active, and there were no troublesome husbands to come demanding their wives at inconvenient hours. Now a wet-nurse could ask good wages—better than that of a domestic servant—her work was light, and her surroundings pleasant. Small wonder therefore that unmarried girls began to look on the position as one worth securing. If only they had an illegitimate child the calling was open to them; and the child—well, put out to a baby-farmer it need not be a burden for long. Thus the scandal grew, for it suited the convenience of everybody concerned. Not for many years was anybody found courageous enough to expose it, and by that time the evil had developed a step further. The women had learned that the quickest and simplest way out of their difficulty was to arrange for their infants to swell the number of the stillborn.

The palmiest days of the wet-nurses were probably reached about the end of the eighteenth or beginning of the nineteenth century. In every town they were in demand. There were well-recognized channels for placing hirer and vendor in communication, and the rates of pay were settled on a liberal basis. In London if you wanted a nurse you applied

[1] Dr. Denman and Dr. Croft.

to a lying-in hospital or, better still, to one of the fashionable accoucheurs, each of whom kept his "nurse-book" in which he entered the names of the women who came to him seeking employment. In the provinces the majority of the practitioners acted in the same way as mediums, each keeping a list for the convenience of his patients. If, however, none of these means was available you would probably advertise in a public paper or, failing this, apply to a parochial infirmary.

Hiring was usually arranged by the quarter or by the year. Ten guineas was the fee for one quarter, sixteen for two, and twenty-five for a year. If the nurse had to provide her own tea and sugar she expected two guineas a year extra. These long engagements were not entirely satisfactory, for a wet-nurse often made herself a nuisance in the house. At a somewhat later period therefore quarterly hiring became less customary, and the women were then usually engaged by the week at ten to twelve shillings, tea and sugar included.

In order to conclude this subject we may anticipate a little to point out that in the nineteenth century, when the methods of artificial feeding became safer, the wet-nurse found a damaging competitor in the sucking-bottle. The latter was by no means free from risk, but against this had to be placed the domestic discomfort and unpleasantness associated with women who were often neither moral, clean, nor temperate. During the last fifty years the bottle has gradually prevailed, and the calling of the wet-nurse has now dwindled almost to extinction.

### *The Dawn of Scientific Methods.*

From the foregoing account we see that though still far from satisfactory, the methods during the greater part of the eighteenth century were an advance on those of the seventeeth century. The most important point is that artificial feeding of a sort had now come into accepted use. For long, however, it was hampered by many practical difficulties (not the least of which was the want of an efficient feeding-bottle) and by an almost complete ignorance of the elementary principles on which it must be founded. By the end of the century we encounter, with no little relief, the first intelligent attempt to place the subject on a scientific footing. Dr. Michael Underwood, the author of a book,[1] very well known in its day, on diseases of children, though still largely bound by traditional views, endeavoured in more than one direction to shake

[1] His book, "A Treatise on the Diseases of Children," in three volumes, was evidently appreciated, for it reached a fourth edition in 1799 and a tenth edition in 1847.

himself free from the prejudices of his time. He is all in favour of breast-feeding, but realizes the necessity of artificial methods, and strives to find some sound basis on which to place it. Milk, he holds, is the most proper food, and he wonders "how the custom of stuffing new-born infants with bread could become so universal." Recognizing the importance of choosing that particular animal milk that most nearly resembles breast milk, he analyses the latter and compares its chemical composition with that of the milk of various animals. The results he sets out in tabular form, and concludes that cow's milk is best suited to average children but recommends ass's milk for tender infants or when cow's milk sets up purging.

With a curiously clear-sighted perception of the real cause of failure in hand-feeding, he urges that the milk should first be boiled, and he suggests the use of barley-water as a diluent. The old-time and primitive feeding utensils[1] met with only qualified approval, and he attempts to popularize a special "infant-feeding-pot" which had recently been invented. Finally he realizes that if artificial feeding is to become generally adopted some guidance will be needed with regard to the frequency of the feeds. Here, however, he seems to feel the need of a longer experience than was available at his time, and while raising this important point he abstains from formulating any hard-and-fast rules.

When treating of the choice of foods in later infancy he shows a similarly progressive spirit. Rice was then a new and little used commodity in England, but he quickly appreciated its value to children. Similarly tapioca, from the Brazils, and semolina receive from him their first mention by a medical writer as suitable for infants.

With regard to breast-feeding, nothing much that was original could be said, but he curtails still further the period of suckling, holding, though without giving any reason, that twelve months is the proper time. He cannot, however, omit the inevitable proviso as to the teeth; four at least must be cut before the breast is given up. He also notes the invention of a nipple-shield, "a new contrivance," recommended for the same purpose then as now.[2] One last original feature of Underwood's book deserves mention. He touches, though only lightly, on the special diet of children in sickness and fever.

[1] See below.

[2] Invented by Mrs. Relf, No. 12, Bell's Buildings, Salisbury Square, Fleet Street, and sold by Mr. Savigny, Surgeons' Instrument-maker in King Street, Covent Garden.

## Victorian Methods—Nineteenth Century.

Advancing on the lines that had guided it in the last fifty years, infant feeding during the nineteenth century showed at least three notable developments. The first in importance, though not in time, was the final acceptance, after long struggles, of the principle of artificial feeding. The second was the demand for special foods suitable for infants, a need the commercial value of which was quickly recognized, and led to the growth of an enormous trade in proprietary foods. The third was the invention of a simple vessel or sucking-bottle from which a child could take its food in a natural manner. Each of these developments will be considered in turn, but we must first trace the changes in the practice of breast-feeding.

### *Breast-feeding.*

We learn that in 1802 four different methods of feeding were recognized: (1) Suckling by the mother; (2) suckling by a wet-nurse; (3) feeding with animal-milk; (4) feeding with bread and water (i.e., pap). Of these the first remained the method of choice. No one, however, appears to have made any observations on the quantity of milk secreted by women or the amount needed by infants. Consequently a silence is still preserved on all practical points dealing with breast-feeding. To make up for this the horizon is kept filled with the question of weaning. At last, however, the belief that the matter was to be settled by counting the milk-teeth was beginning to be shaken. The object-lesson of Marcus Curius Dentatus was taken to heart and the reformers began seeking out other difficult cases. Louis XIV of France was born with a couple of teeth, so was Richard III of England.[1] And did not Polydore Vergil mention a newborn child with six teeth? How would the rule of weaning apply to them? Then there was the apothecary's son whom Lanzoni knew, and he was several years old before he cut any tooth at all. The boy would never have been weaned.

The proper age for weaning being a physiological consideration of no small importance every author is ready with his advice—usually

[1] Shakespeare had evidently heard of this curiosity, for he makes the young Duke of York say of Richard III.:—

> "Marry, they say my uncle grew so fast
> That he could gnaw a crust at two hours old."
>
> *Richard III*, Act. ii, sc. 4.

more dogmatic than reasoned—and yet strangely enough no two authorities agree. Let us look at the expert opinion of the century. The following summary of the views of the leading writers shows it at a glance :—

| | | |
|---|---|---|
| 1802 | Wean | at 6 to 8 months, provided four teeth are cut. |
| 1825 | ,, | at 8 to 10 months for a vigorous child, later if puny. |
| 1826 | ,, | at 11 to 12 months, but not unless several teeth are cut. |
| 1827 | ,, | after four incisors have been cut. |
| 1840 | ,, | at 9 months on an average. |
| 1842 | ,, | at 7 to 12 months. |
| 1847 | ,, | according to the teeth. When canines appear more food needed. |
| 1853 | ,, | at 9 months, but remember teeth have a meaning. |
| 1868 | ,, | at 12 months in ordinary cases. |
| 1886 | ,, | at 8 months. |
| 1897 | ,, | at 9 to 12 months. |

Oscillating this way and that, the period seems to have been determined by no better reason than the personal bias of the writer. Indeed, the century ends without any scientific inquiry to settle, once and for all, the physiological conditions which, in any given case, make breast-feeding no longer desirable. Perhaps this omission is to be explained by the fact that, as we shall now learn, the interest of the nineteenth century was absorbed almost entirely by artificial feeding.

### *Artificial Feeding.*

In the opening years of the century mixed feeding was in general use. A variety of messes was recommended for breast-fed children a few weeks old. Water-pap still figures prominently, while oatmeal, rice, or barley boiled in cow's milk is given at the end of the first month. Herb-tea made of cowslips or star-of-anise and milk is an excellent substitute for pap. The German custom of administering a good beer-soup as soon as the first incisors show themselves is approved of. Whether the infants of the period appreciated these dietetic experiments we cannot now tell, but we feel no surprise at the contemporary mention of a "three-months' belly-ache" that was prevalent among children of that age, or of the "weaning-sickness" that lay in wait for the breast-fed infants.

The authoritative opinion that saw nothing wrong in allowing the youngest infants to feed on boiled rice and beer was hardly likely to be any less heroic with older children. Accordingly we find that at six months they were to be introduced to puddings, and at eight months to flesh meat. Fortunately these crude methods led before long to a

reaction. By 1825 it had become recognized by many that for the first five or six months at any rate mixed feeding should be avoided, and the breast alone given. In spite of this conclusion, however, artificial feeding continued to develop, though the obstacles in its way were for a long time serious. Let us turn aside for a moment to look at the condition of the infant population during the period when this method was passing through its chief difficulties, that is, between 1750 and 1850.

### *Infant Life, 1750-1850.*

Infant feeding and infant mortality are so closely bound up with each other that the bygone records of infant deaths should throw some light on our subject. The official records, however, are not of much use to us. Based on the returns made by the Company of Parish Clerks of London those bills of mortality include the births only of those infants who were christened ; the children of Quakers and Dissenters were not counted. Similarly the number of infant deaths could hardly have been inclusive, for not all would come to the knowledge of the parish clerks.[1] We may note, however, that the deaths under two years " within the Bills " formed a considerable proportion of the christenings. Thus in :—

| | | | | | | |
|---|---|---|---|---|---|---|
| 1780-81 | the christenings | numbered | 17,026 | and the burials | under two years | 7,083 |
| 1806-07 | ,, | ,, | 19,416 | ,, | ,, | 5,443 |
| 1816-17 | ,, | ,, | 20,129 | ,, | ,, | 5,698 |

For more direct information we must turn to the occasional contemporary estimations of the relative effects of breast- and hand-feeding, or to the mortality in foundling hospitals where hand-feeding was customary. Among the former we may select the three following estimations made respectively about the beginning, middle, and end of the period 1750-1850. Sir Hans Sloane, in a letter to the Vice-President of the Foundling Hospital, stated that the mortality among dry-nursed infants was nearly thrice as heavy as among children who were suckled (53·9 per cent. to 19·2 per cent.). In the early part of the nineteenth century hand-feeding, we are told, was fatal in London to at least seven out of eight children. Later still, Marshall Hall, " who

[1] The parish clerk depended for his information not on any system of compulsory notification, but on the parish " searchers." These were generally a couple of women whose business was to go up and down the parish finding out, as best they could, who was dead or likely to die. Their official curiosity, however, could, as a rule, be successfully allayed by a moderate bribe.

made a point of ascertaining the mortality among dry-nursed children," stated that it amounted to seven in ten.

In the British Lying-in Hospital during the concluding years of the eighteenth century the rule was made that the patients should suckle their own children. As a result the infant mortality fell to 60 per cent. of that in the preceding forty years.

The foundling hospitals, with their hand-fed babies, showed a truly appalling mortality. Though no contemporary records of the hospital in London appear to have been published, the figures from other large cities are sufficiently suggestive. Take the Paris Foundling Hospital, for example. During the years 1771-77 the number of children admitted was 31,951, of whom 25,476 (80 per cent.) died before the end of their first year. Into the same hospital during the three years 1820-22 15,104 infants were received, of whom 7,601 died under one year. Such a harvest of death would almost suggest that hand-feeding ravaged like a pestilence, but the figures pale before those of the Dublin Foundling Hospital. Of 10,272 children admitted to the infirmary at Dublin during the twenty-one years, 1775-96, only forty-five survived—that is, 99·6 per cent. died.

Although, of course, it would be unwise to attribute these deaths directly to hand-feeding alone,[1] they do at any rate give some explanation why artificial feeding was regarded with so much suspicion and made such slow headway. That the hospital authorities themselves appreciated the deadly effects of the method is shown by the arrangements they made in London to send their children to wet-nurses in the country.[2] In one of the French hospitals when wet-nursing was introduced the mortality fell very considerably. The French critic of the time, however, had ample excuse for the mordant inscription he wanted to place over the doors of these hospitals—"Ici on fait mourir les enfans." Malthus, in this country, expressed the same feeling when he wrote that there was no better means of stopping the growth of population than by multiplying the institutions where the newborn are received.

[1] We may mention, however, that the heading "Death from Want of Breast Milk" still retained in the Registrar-General's Reports was originally intended for the mortality in foundling hospitals.

[2] Other and no less deadly dangers awaited them in the country, where the hired nurse often gave no more than she need in return for her money. Jonas Hanway, in his "Plea for Mercy to the Children of the Poor," after mentioning that not more than one in seventy of the children entrusted to the Parish ever grow up, speaks of a memorandum he met with in the books of a certain parish in which, against the names of some of the nurses, was the comment "excellent killing nurse."

*Cow-horn to Feeding-bottle.*

Returning now to the methods of artificial feeding, we find that no small share of the responsibility of their failure must be laid on the want of suitable feeding utensils. Ordinary household cups and spoons were ill-adapted for this special purpose. A vessel was needed from which a child could take its food by the natural act of sucking.

The bucolic ingenuity which appreciated the part a cow played in providing the food would turn, naturally enough, to the same pastoral source for the vessel wherein to serve the milk. A cow-horn with its tapering end seemed to suggest a not unpromising vessel. It was easily obtained, cost little, and its size and shape were convenient. It was durable, and with a minimum of labour could be fitted to its novel purpose.

A cow-horn, then, was the orgininal sucking-bottle. The earliest account of it that I have found is in 1783.[1] From this we learn that it was taken from a calf or small cow and held about a gill and a half; it was scraped and polished and its tip perforated; to a notch cut round the smaller end were tied two small pieces of parchment or leather "shaped like the tip of the finger of a glove and sewed together in such a manner as that the food passed into the horn can be sucked through between the stitches."

Primitive to a degree, the horn was nevertheless regarded as a highly ingenious invention. Dr. William Heberden specially praised it for its twofold usefulness in preventing children from taking too much food (this point no one is likely to dispute) and in imitating Nature—"the child might suck from it as from a breast." What accumulations of soured and decomposing milk would collect in the horn and between the stitches of the teat we can but guess, though we read without surprise that any child brought up on it "is in danger of falling into the watery gripes."

Before long a glass bottle was introduced, "similarly shaped and used for a like purpose" as the horn. This, the first glass feeding-bottle, dates from the opening years of the nineteenth century, and it is not without interest to recall that the subsequent improvements have

[1] The earliest mention of a "sukingbottle" (improbably one for infants) appears to be in the seventeenth century, when Master Marmaduke Rawdon burnt his mouth playing with fire-works. "His mouthe was soe burnt up that his mother was in great care how to feede him, but he hearinge hir in that perplexitie, made signes for a sukingbottle" (Memoirs of Marmaduke Rawdon, Camden Society, quoted in "Home Life under the Stuarts," by E. Godfrey, 1903, p. 27).

conformed more or less closely to the original shape, and therefore that the modern bottle owes its form to the original cow-horn.

### *Pap-boat and Pap-spoon.*

For children who, for one reason and another, had no horn there were the "pap-boat" and the "pap-spoon." The former, not unlike a modern sauce-boat, but smaller and without a handle, was made in crockery-ware, pewter, or silver. Used more especially for the thicker foods, such as pap or panada, it was held directly to the child's lips. The pap-spoon, also adapted for semi-solid foods, consisted of a handle with a long narrow bowl roofed over by a hinged-lid except near the tip, where a more or less semi-circular opening allowed the contents to be poured into the child's mouth. It was generally made of pewter, but for the well-to-do of silver, a luxury which is responsible for the popular reference to a child being born with a silver spoon in its mouth.[1]

Of the three—horn, boat, and spoon—the two latter appear to have most commended themselves. Even the improved glass "horn" enjoyed only a limited popularity, partly, no doubt, on account of its unsatisfactory teat.[2] The next step was an attempt to combine the advantages of a sauce-boat with the convenience of a sucking-teat. The new vessel was known as the "infant-feeding-pot."[3] It had "the shape of an Argyle or gravy-pot with a long spout rising from the bottom, and pierced only with a few small holes at the end, which is to be covered with a piece of vellum, washing leather, or parchment; which, being left loose a little way over the spout, is soft and pleasant to the infant's mouth."

This pot was, perhaps, an improvement on the horn, but the teat remained as primitive as before. Parchment and leather were hardly cleanly, and, of course, as soon as the child began to suck, the teat collapsed. To overcome this it was filled with a piece of sponge, thus adding yet another breeding-ground for germs. The result was still far from ideal, and in 1826 they turned for help once again to the cow. A heifer's teat was pressed into service, and this "prepared in the best possible manner by those who understand the art," soon acquired an

[1] The reader who is interested in these old-time utensils may care to know that the ollection in the Victoria and Albert Museum, South Kensington, includes two pewter pap-boats and a pap-spoon.

[2] Another reason, probably, was the tax placed on glassware during the Napoleonic wars.

[3] Invented by Dr. Hugh Smith, a physician to the Middlesex Hospital.

extensive popularity which lasted well within the memory of the present generation.[1] Like its parchment predecessor, the heifer's teat was tied to the bottle with thread and was stuffed out with the indispensable piece of sponge. Of a not very durable nature, it was usually kept in spirit, and by this means its life was prolonged until it putrefied (a result which we are told was invariable) and the child was no longer willing to accept it between its lips.

No further improvements are recorded until the middle of the century, when two or three slightly specialized bottles were invented—Elam's, Maw's, and Cooper's. The old and unsatisfactory teats, however, were still retained, though much ingenuity was spent in devising something better. Decalcified bone teats, wooden teats, india-rubber teats (not popular on account of their " repulsive taste and smell "), and even metal teats, were tried in turn, but parchment and leather still held their own alongside the heifer's teat.

### *Biberon and Mamma.*

In the year of the Great Exhibition, however, quite a new style of feeding-bottle (no longer " sucking-bottle "), on an improved principle, came over from Paris.[2] Though in our eyes elaborate things of valves and spiral tubes, these "biberons," as they were called, marked a notable advance. The invention was hailed with enthusiasm, the *Lancet* declaring they had "seldom seen anything more beautiful." The bottles were of glass with cork nipples. Air was admitted by delicate spiral tubes, and the flow was regulated by ivory pins fitting into openings at the opposite end. We may doubt whether the advantages of the biberon were appreciated by the average unintelligent nurse. At any rate, a demand for something simpler seems to have existed, and in 1869 a medical man devised a new form.[3] Shaped somewhat like a pear, it was fitted at its broader end to receive a large, hemispherical rubber cap elevated at its centre as a teat. From the latter a bent glass tube ran to the interior of the bottle. The tapering end was provided with a rubber valve, " like that of the mitral of the heart." Explaining that the cap was intended to deceive the child by its resemblance to the mother's breast, the inventor gave his contrivance the name of "mamma."

[1] Like most of the accessories of infant feeding, these teats were customarily stocked by the medical practitioners.

[2] The invention of a M. Darbo.

[3] Dr. C. H. F. Routh.

An advantage claimed for it was that it might "be worn by the female in the position of the breast," and thus ensconced, would be kept warm "all night and day."

Biberon and mamma alike have long ago fallen out of knowledge, but they both stood in the direct line of evolution of the modern bottle. The next stage, the "Alexandra" ("old-fashioned") bottle was in many respects a retrogression, for it elaborated the internal tube of the mamma and prolonged the nipple as a flexible tube. But when at last the necessity of cleanliness was understood, all tubes were thrown aside, the large cap of the mamma was changed to the small rubber teat (hollow but elastic to retain its shape), and at the opposite end a simple rubber valve was retained. The bottle itself reverted to a shape more like the old cow-horn.

To complete this account of the evolution of the feeding-bottle, let us add that, like most innovations, it came into use in spite of the opposition of the many who, because it dispensed with the mother, held it to be essentially bad. Little more than thirty years ago we find a contributor to one of the medical papers writing of the feeding-bottle as "one of the most injurious and pernicious introductions of modern times." No doubt the objections that can be raised against it are many, but in time they will pass away. To-day, at any rate, the bottle has become an indispensable adjunct to infant feeding.

### *London Milk in 1850.*

With horns and feeding-bottles available for every child cow's milk received an increasing amount of attention, but from the beginning of the nineteenth century the risks inseparable from its use are still clearly reflected in the medical books on children. Thus in 1802 we are advised that if cow's milk must be used the child should suck it directly from the animal's teat. In 1840 Chavasse, the author of a widely read book on children, still maintains that the best substitute for breast-milk is water-pap. Even as late as 1876 another authority is found urging the direct sucking of a cow or ass rather than any form of hand-feeding.

Such advice, almost fanciful in our ears, is readily enough explained. We must remember, on the one hand, that the objection to boiling milk survived as a widespread prejudice until less than twenty years ago, and, on the other hand, that the almost incredibly foul condition of the milk supplies in large towns is amply attested by contemporary writers. London, for example, had spread so wide, and the means of rapidly conveying milk from the surrounding country were so defective, that

the dairymen stalled their cattle in the crowded parts of the town—the parish of St. James's, Westminster, for example, contained fourteen cowhouses. The beasts were herded in underground cellars, dark, unventilated, and filthy with the wretched animals, full of disease, crowded almost to suffocation.

The *Lancet* appointed a sanitary commission to investigate the condition of these houses and their inmates. The following description of a dairy in Clerkenwell records "by no means an exceptional case": "Thirty to forty cows in a most disgusting condition, full of ulcers, their teats diseased and their legs full of tumours and abscesses—in fact, quite horrible to look at, and a fellow was milking them in the midst of all this abomination."[1] In a pamphlet, "Observations on London Milk" (2nd ed., 1851), by Mr. Rugg, surgeon, the following passage occurs: "There is scarcely a cowshed one enters but some of the beasts will be found afflicted with the mange. I entered one under the Adelphi Arches where forty cows were kept, and every one of them had that disease; also another shed in the same locality where the poor beasts never saw the light of Heaven from year's end to year's end, the place being entirely lighted by gas, and the only ventilation that existed was by means of a small hole, not half a foot square, knocked out of the wall."

### *Patent Foods.*

Naturally enough the need for some safer food than cow's milk was pressing. Numerous articles were tried. In addition to those previously mentioned we find sago-milk, arrowroot, salep,[2] biscuits, "tops and bottoms," gum-arabic, manna-croup,[3] isinglass, and jellies. Some of these have remained in favour to the present day, but others enjoyed only a short vogue, their disappearance being hastened, no doubt, by the first proprietary foods, which were placed on the market about 1840. By supplying a genuine want these foods quickly passed into popular favour. The first preparation specially intended for infants was the so-called "tops and bottoms," which, though it had been in use from the early part of the century, did not become widely known until some years later, when it was specially manufactured by a London firm.[4]

[1] *Lancet*, 1855, ii, p. 551.

[2] A powder prepared from the roots of *Orchis masculata*, dissolved in hot water.

[3] Coarse grains of ground wheat used for soups, puddings, &c.

[4] At the suggestion of Dr. Golding, the founder of Charing Cross Hospital, who, realizing the great need among the poor for a cheap but safe food, induced Messrs. Robb and Co. to undertake the manufacture.

Before long other prepared foods were on sale. Hard's Farinaceous Food and Lemmon's Biscuit Powder were two of the earliest. In 1867 Justus von Liebig introduced a food in the preparation of which he adopted the principle of malting. "Liebig's Food for Infants" was a liquid consisting of milk and wheaten flour, to which were added malt (to convert the starch to grape-sugar) and a small quantity of bicarbonate of potash. It was sold ready for use (at about sixpence a quart), but to its disadvantage, fresh supplies were required daily. Though for this reason it could never come into extensive use, the principle of its preparation was good, and has survived in the many varieties of malted foods of the present day.

The next step was the introduction of concentrated, condensed or desiccated cow's milk. This improvement obviously gave a considerable impulse to the practice of artificial feeding, and this again to the manufacture of patent foods, so that by 1883 no fewer than twenty-seven brands could be obtained, most of them, however, enjoying only a short life.

The more recent developments of this branch of infant feeding are too well known to need any account here. Experience, however, has proved that the safest and most convenient form of food is that of a dry powder soluble in water. Modern preparations belong to one of two main classes. Some contain desiccated milk added to a carbohydrate; others a carbohydrate only, either malted, partly malted, or unmalted.

### *The Success of Artificial Feeding, 1850-1900.*

By the middle of the century we find the hand-fed child at last provided with a fairly satisfactory feeding-bottle, animal milk which was none too clean, and some choice in proprietary foods. Given these accessories the problem that now opened itself was how best to use them. Should the milk be diluted, and if so, to what extent? How much should go to a feed, and how often should a feed be given? These were some of the questions that now presented themselves for solution. No one, however, possessed the necessary experience to answer them. One said, vaguely enough, that "the quantity must be regulated by the age of the child"; another discretely left it to the good sense of the parent; while a third frankly admitted that he could say nothing on the point. The most helpful guide at this time was, perhaps, Dr. Graham's book which appeared in 1853. Somewhat loosely, he times the feeds according to the "age and powers" of the child, suggesting three to four-

hourly intervals at the third week, and recommending that attention should be paid to the temperature of the milk."[1] Becoming more practical, he fixes the size of a feed at 3 oz. to 4 oz. and, for dilution, advises one in three of cow's milk during the first ten days, equal parts until the end of the second month; and thereafter more milk than water. For five months only milk, water and sugar should be allowed: subsequently the addition of gum-arabic water is particularly good.

With all their brevity these directions are by far the most complete up to date, but they left hand-feeding still called on to fight every inch of its way. In 1862 it was in disrepute because, we are told, "it is in general so unsuccessful." Soon, however, its fortunes were to turn. In 1868 appeared a novel work, "The Wasting Diseases of Children," by Dr. Eustace Smith. By moderate and intelligent advocation he brought whole battalions to the support of hand-feeding. So rapidly did the practice gain ground that ten years later, in his third edition, he could write, "The practice of artificial feeding is denounced by some," that is to say, the majority had accepted it and the battle was won.

Somewhat amplifying the details given by his predecessors, Dr. Smith recommended two-hourly feeds throughout, with the addition of cream as well as sugar. Curiously enough, he insists that the milk must not be boiled. At this time, and indeed for nearly twenty years later, the popular belief held that raw milk was better for children than boiled.[2] This attitude did much to retard the spread of hand-feeding and explains the advice given, as we have seen, by at least one medical writer of thirty years ago, that for greater safety a child should suck direct from the udder of a cow or ass. However, as the prejudice died away and feeds were systematically boiled the risks became less, until, in 1884, Dr. Smith was able to write, "The successful rearing of an infant by artificial means is not a difficult matter."

The full significance of this statement must not be overlooked. It means, on the one hand, that the most important development in the whole history of infant feeding has been attained. But it implies much more than this. We read in it that the maternal breast is no longer essential to the infant, and that the physiological law which for untold

[1] Chavasse was the first to direct attention to this point in 1842.

[2] In 1889 Dr. Cheadle, in his "Artificial Feeding of Infants" (1st ed.), urging the necessity of boiling milk, wrote that "nurses will fight against it, and mothers, perhaps, object, for there is a common prejudice against it." Nine out of ten children, he estimates, are given raw milk.

centuries had bound the whole mammalian kingdom has now been repealed by man's own ingenuity. Henceforth, the bond that Nature had set between the parent organism and its offspring had been loosened.

Meanwhile, with increasing experience, the practical details of hand-feeding were being worked out. Observations on an extended scale were hardly possible until children's hospitals came into being. In the four years, 1866-69, no fewer than five of the leading children's hospitals in London were founded in quick succession, and among them was the Evelina. Here, in a large out-patient department, the opportunities for making a practical study of artificial feeding were hardly to be rivalled, and to one of its physicians belongs the distinction of placing our practice on its modern basis. Dr. Goodhart, in his "Diseases of Children" (4th ed., 1891), inserted a little table briefly summarizing a scheme of hand-feeding. It shows the hourly intervals between the feeds, the total number of feeds per diem, the size of each, and the total quantity per diem. This table proved of so much help that in a later edition it was elaborated, and for the first time full directions were given for the hand-feeding of infants of every age.

The cardinal factor on which this scheme is based is the age of the child—at so many weeks so much milk, and so on. Readily ascertained and convenient in its application, this age-factor quickly gained acceptance as the best available criterion, and by the end of the century there was probably not a children's hospital nor a medical practitioner who had not adopted it in routine clinical work. Without doubt it served a useful end. By reducing all experimental observations to a common denominator it has been of invaluable help in systematizing our methods on the best available lines.

## Conclusion.

Perhaps the most significant fact that this history has brought out is the progressive decline in the period of suckling. Beginning in the fifteenth century at two to three years, it had decreased two hundred years later to a couple of years. Before the middle of the thirteenth century it lasted only eighteen to twenty months. In the next century it had become eleven to twelve months, and it stands now, at the beginning of the twentieth century, at no more than seven to nine months. Tracing it thus through more than four hundred years we cover a period of a dozen generations, in each of which the mothers gave or were able to give less time to suckling their offspring than in the last. This change, so gradual but so consistently in one direction, must betoken

more than mere passing fashion. It raises a question of the first importance. Does this shortening represent a physiological variation in our race which, still in progress, has yet to reach its goal? If we answer this affirmatively (as, contrary to my own preconceptions, I feel constrained to do by the logic of facts and time) we must admit that maternity is losing one of its chief functions. With the women of to-day feeding their infants only for as many trimesters as their ancestors did years, what power of suckling will be left to the women of to-morrow and the day after?

Maternal breast-feeding, however, has not only become shortened, it has become less frequent. At first wet-nursing took its place. This came into favour, had its day, and was overthrown by the sucking-bottle, but for the last century and a half artificial methods have been forcing their way to the front, and have reached their widest popularity in the opening years of the twentieth century. Hand-feeding is already so well understood that beyond all dispute an infant can be reared by it with perfect safety to its health. As its principles become more extensively known (and efforts to this end are being made on every side) larger numbers of children will be reared by hand alone. The conclusion seems forced on us that in time this method is likely still further to supplant the method of Nature.

Looking ahead, can we discern at all clearly the probable developments of artificial feeding? Here and there we find indications that the basis of age as a measure of nutritional needs is already becoming worn out. Infants of one age are by no means necessarily of one size. Their weights vary, and the amounts of nourishment their bodies require cannot be identical. In place of age a physiological basis will be looked for. We know that the largest share of a warm-blooded animal's food is needed as energy to supply it with animal heat. With infants the same relation holds good, and before long the predominant importance of this question of animal-heat is likely to be recognized.[1]

Another likely development already showing itself is in the use of foods other than milk. Human milk has long been increasingly supplanted by cow's milk. Cow's milk in its turn is meeting with the rivalry of patent foods. Nor is this altogether cause for surprise. Cow's milk is open to obvious and serious objections. It is easily contaminated. It is frequently diseased. It is both frequently and easily tampered with before it reaches the infant. These disadvantages

[1] For a full discussion of this relation see "Children in Health and Disease," by David Forsyth, M.D., 1909.

are not readily discovered, except by the harm they produce. At best cow's milk is variable in composition, bulky in transit, inconvenient to store, and soon loses its sweetness. Will it succeed in holding its own in spite of these objections?

The patent foods, on the other hand, with which it has to contend are prepared by scientific methods that prevent the risk of contamination. They are never diseased, rarely tampered with, and usually are consistent in composition. Prepared in a concentrated, solid form, they are convenient in transit and storage, retain their freshness indefinitely, and are readily converted into a liquid such as an infant requires. On which side will popular opinion ultimately rest?

On the whole the future of infant feeding would seem to lie with the artificial methods. At first encounter this conclusion can hardly be pleasant to those who, like myself, have consistently advocated the superiority of breast-feeding. It is a conclusion, moreover, which, once admitted, is bound to obtrude itself in our daily practice. If we are satisfied that a mother is able to provide facilities for artificial feeding and at the same time to avoid its risks we cannot decline to consider a method which has much in its favour. My own experience is that medical men, except when working among the poor, whose ignorance is a fatal objection, are inclined to regard the feeding-bottle with less disfavour than they used to feel when its risks were greater. In doing this they are displaying a practical appreciation of what history proves to be the modern trend of infant feeding.

## BIBLIOGRAPHY.

A.D.

1487 Paulus Bagellardus. "De Ægritudinibus Infantium" (reprinted in 1538 at Lyons, with Commentary by Petrus Toletus).

1567 Thomas Faier. "The Regiment of Life" (including "The Booke of Chyldren").

1689 Walter Harris. "De Morbis Acutis Infantum."

1697 John Peachey. "A General Treatise of the Diseases of Infants and Children."

1729 An Eminent Physician. "The Nurse's Guide."

1756 Jas. Nelson, Apothecary. "An Essay on the Government of Children" (2nd. ed.).

1783 George Armstrong. "An Account of the Diseases most incident to Children" (New ed.).

1799 Michael Underwood. "A Treatise on the Diseases of Children," in 3 vols. (4th ed.).

1802 Christian A. Struve. "Domestic Education of Children." (Trans. by A. F. M. Willich.)

1805 William Heberden. "Epitome of Infantile Diseases."

A.D.
1811 WILLIAM BUCHAN. "Advice to Mothers" (2nd ed.).
1825 JAMES KENNEDY. "The Management of Children," Glasgow.
1826 W. P. DEWEES. "Physical and Medical Treatment of Children."
1827 C. T. HADEN. "Management and Diseases of Children."
1840 P. H. CHAVASSE. "Advice to a Mother" (5th ed.).
1847 G. T. GREAM. "The Diet of Children."
1850 FLEETWOOD CHURCHILL. "The Diseases of Children," Dublin.
1853 T. G. GRAHAM. "Management and Disorders of Infancy and Childhood."
1862 M. A. BAINES. "Infant Alimentation," Brighton.
1868 EUSTACE SMITH. "Wasting Diseases of Children" (1st ed.).
1876 C. H. F. ROUTH. "Infant Feeding" (3rd ed.).
1884 EUSTACE SMITH. "Diseases in Children" (1st ed.).
1885 J. F. GOODHART. "Diseases of Children" (1st ed.; 4th ed. 1891).
1889 W. B. CHEADLE. "Artificial Feeding of Children" (1st ed.).

## DISCUSSION.

The PRESIDENT (Dr. E. Cautley) congratulated Dr. Forsyth on his very interesting paper. The history of infant feeding very strongly showed the tendency towards artificial feeding, as opposed to breast-feeding. No doubt Dr. Forsyth was correct in saying that many medical men were in favour of artificial feeding, on account of the difficulty of getting the mother to nurse the child. Dr. Forsyth seemed rather to assume that there was a great preponderance of medical men who favoured bottle-feeding in preference to breast-feeding, but he, Dr. Cautley, thought the tendency in the profession was to regard the breast as the best method of feeding, if it was available.

Dr. W. BEZLY THORNE said it was his conviction, after forty years of observation, that the difficulty in breast-feeding, though it rested to a considerable extent with the mother, depended to a very much larger extent on the monthly nurse. The nurse strongly objected to bringing the child to the mother, and it was his absolute conviction that drugging of infants by monthly nurses was an extremely common practice; that the young mother was persuaded over and over again that the milk was disagreeing with the child, whereas it was really the drugging of the child which was doing the harm; thus the confiding mother was persuaded to give up the natural mode of feeding.

## Measles: Its Treatment and Prevention.

By ROBERT MILNE, M.D.

THE present outbreak of measles in London and the country, combined with the very extensive, severe, and fatal outbreak among our naval cadets at Dartmouth, necessitate my laying before my medical brethren my experience in the treatment of the same. All the more so as measles has been so fully discussed in the lay Press, thereby causing widespread anxiety and excitement. Further, the present agitation for the notification and isolation of measles, as has been the case with scarlet fever, demands that my experience be laid before the medical public. This will show such to be altogether unnecessary and unwarrantable; for the moving of delicate children at such a time can only be attended by the most serious dangers to the little patient. I have already proved[1] such a proceeding to be altogether unnecessary in scarlet fever patients, even when in poor and overcrowded rooms; and shown that it is an enormous financial waste of millions of pounds every year. Besides, it greatly increases the patient's danger in both cross-infection and complications.

When the *Medical Annual* of 1910 appeared I had some correspondence with Dr. Goodall, the reviewer of my work on scarlet fever, on his review, of which I complained. In the course of 1910 I gave two papers, from which I quote the following:—

> The writer in the *Medical Annual* for 1910 quotes a case of infection from a new coat from a child who had scarlet fever. The coat was wrapped in paper and kept in a drawer for twelve months. All the other clothing had been destroyed. Then it was given to a girl, who in a few days developed scarlet fever. He quotes earlier in his paper the following: "Scarlet fever broke out in an institution in which were four women (each nursing an infant of four months old) and twenty-two children of 2 to 6 years of age. Every one of the twenty-two children contracted the disease, together with one of the women."
>
> Now contrast and compare this with the following: On February 1, 1910, the sister-in-charge of the Receiving Home at Dr. Barnardo's Village Home had occasion to take some of the children in residence to London. They mingled

[1] "The Home Treatment and Prevention of Scarlet Fever," James Nisbet and Co., 22, Berners Street, London, W.C.

with many children. Returning homewards, the Sister remarked that she hoped that none of the children had contracted any infectious trouble. On February 4 one of these children was found to have scarlet fever, with typical rash, with characteristic tongue and throat. She was 7 years of age. In the same room were twenty-four children, under 6 years of age. The patient was at once treated in the usual way. She peeled freely all over. There was no complication. Neither was there any infection of other children. This, although she was in the same room with others all the time, except when they went out to play. Then after ten days she was out of bed, and mingled freely with them in all their games. All the time toys were freely interchanged. Not only so, but after the tenth day she came daily in contact with altogether 128 children. Of these, sixty-two were under 7 years of age. When the scarlet fever appeared there were sixty-three children in residence. Sixty-five were admitted to the Home before March 12. Of these, forty-three were passed into the cottages in the village to mingle with 1,300 other children, while thirteen were boarded out. Among the medical men who inspected this case most carefully were hospital experts, public health men, literary medical men, and private practitioners. When in the earlier peeling stage, several of these visited at the same time. The twenty-four children were in the room. We first spoke to them and made friends. Then I turned to the patient and said that this was the case I had invited them to see. Speedily they were round the bed, and the wee toddlers also joined with open eyes and mouths and eager faces, as if they understood all. The medical men looked in wonder at the wee ones among themselves, pressing against the bed. The peeling was first examined, then the tongue, nose, and glands. Both a medical officer of health and a scarlet fever expert remarked that there was no question of this being a case of scarlet fever. They were intensely surprised; they contrasted it with the present isolation system, and noted the saving of money and of worry that must result; for the said result was merely a question of time.

When I read a paper before the British Medical Association in July, I was able to give a cordial invitation to all medical men to visit Dr. Barnardo's Homes, and to see four cases under treatment. They had been seen by other medical men. Two were in the hospital of the Homes. One had been, since the first day of the disease, for four weeks in the surgical ward with fifteen other patients, and lay between two cases operated on for inguinal hernia two days after his admission. After the tenth day he was up, and about the ward, freely peeling all the time. The other was in a ward with seven other girls. The third case was in a Branch Home with over fifty little girls, and after the tenth day mingled freely with them at play, at work, at meals, and slept in the same room as many of them did. The fourth case was at the Village Home, and was for ten days with five others, and after the fourth day with thirteen other children.

To the members of this Oxford Branch of the British Medical Association I am also able to give a most cordial invitation to inspect some cases at Dr. Barnardo's Village Home. For there are three children under treatment

there—children who were inspected some time since by three of your members. One peeled more freely than any case I have seen. She had, moreover, a most erratic temperature, yet she had no complications of throat, glands, nose, ears, or kidney trouble. This child, and the second case, was with some five others, two of whom were under 3 years of age. The second case was discharged after some ten days, and is at school, peeling, and mingling with some 1,300 others.

The third case occurred in our Receiving House at the village. On the children's arrival they are taken here, and kept from one to three, or sometimes more, weeks. They are thoroughly washed and cleansed. In the same room with this case were nineteen children. Six of these were from 1 to 3 years of age, six from 3 to 7, and seven from 7 to 15. After ten days she was out of bed, and mingled with sixty other children from babyhood to 15 years of age. . . .

Could anything more aptly parallel these outbreaks? Could the annals of medicine afford a greater contrast in the results than that given by my reviewer, and these cases in Dr. Barnardo's Homes, and those at Kingstown? Surely my reviewer by next year, having read all the facts, will find the treatment is, after all, of some value.

The matrons in our hospitals are most enthusiastic over the treatment. One wrote: "I thought Dr. Milne was insane when he said to me, 'Have this child rubbed with eucalyptus oil, and his throat treated, and put him in the ward with the other children.' During the eleven years I was in the hospital we had a large number of cases, yet I do not know of one instance in which the infection spread, or complications ensued." Our present esteemed matron, Sister Gwendoline, writes: "I consider it one of the greatest benefits to both hospitals and patients that has been made known in recent years. No one who has known what an upset a case of scarlet fever causes in a hospital, in isolation, quarantine and disinfection, can fail to realize what a boon it is. My first experience was, I must say, a great shock. The case was brought into the surgical ward (sixteen beds) for operation. The boy speedily developed scarlet fever. The resident medical officer, recently appointed, isolated the case. On Dr. Milne's visit, next day, he was put among the fifteen other patients in the ward, where he remained all the time. Now I have had over forty cases treated in this way, and cannot say too much in its praise. I sincerely trust it may speedily be in general use not only in hospitals, but in the homes of both rich and poor."

Since I received your invitation I have had not a few communications similar to the one I quoted before the British Medical Association meeting from a medical officer of health, of a friend who had a case in a small home with two rooms and with six children and the parents. His friend carried out the treatment personally, and with every success. He did not notify, or it would have been removed. "You must not give names," he said, "or you may get me into trouble." Over a hundred medical men have written to the same effect. One stopped me in the street, for he said he had wished to see me for

some time. He had repeatedly carried out my method with every success in the poorest surroundings. I asked him why some of them do not come forward and publish the cases, for I have the same story from so many. "We daren't," he said, "we do not notify the cases. Were we to do so the sanitary inspector would visit, and we might as well proclaim it in the street. Cases that I have had meant ruin to the people had the neighbours known."

Yet in spite of all this and much more, I must refer to the criticism of my work by the same "Outlook" and "Pilot" on acute infectious diseases, in the *Medical Annual* for 1911,[1] to hand on March 8, with Editorial preface of February, 1911.

Surely it is no fair "Outlook" to skip scores of cases that have been seen by hundreds of medical men, and by dozens of superintendents of isolation hospitals, including himself—who saw cases at his own request in various stages, saw them in the earliest stages, red as a lobster, and examined throats, &c., and saw others peeling, yet failed to find any complications. He saw them lying so close to serious operation cases that the patients could touch hands with one another in their beds. Surely it is not the part of a good and expert "Pilot" to call for the ages of my 1908 cases, and to refer mostly to what I published in the *British Medical Journal* of 1908 and January, 1909, when at the British Medical Association meeting in July, and published in the *British Medical Journal* of September 3, I told of twenty-four children in one room, all under 4 years of age, all unprotected so far as known, one of whom had scarlet fever, and spent the whole time in the room with the twenty-three others. Yet "Outlook" and "Pilot" neither condescends on this nor on my Oxford paper, published by two medical journals (the *Medical News* and the *Medical Magazine*) one after the other, "as the facts were so important." Neither does he mention that both the members of the British Medical Association, as well as the Oxford Branch, were invited to inspect four and three cases respectively, in July and November, which had been seen by other medical men. These were with from 5 to 1,300 children.

To my reviewer, it seems to be moonshine that by this method we have neither complications nor return cases. For in neither year does he, in some six pages, refer to this acknowledged fact. In both, however, he says that the same results would have been obtained without treatment (1910), that it has not been shown that eucalyptus has anything to do with the result (1911). Well did Dr. Goodhart say, as he saw some of these cases, "How hard it will be for some medical men to believe

[1] *Medical Annual*, Bristol, 1911, xxix, p. 565.

in the treatment in spite of the facts "—facts of which Dr. Bond said, " Scepticism was no longer justifiable." Regarding which Dr. Seaton, in his Chadwick Lectures, London University, said, " I have seen some of Dr. Milne's work. The time has now come when the Local Government Board must give power to medical officers of health to carry out this method, or a bill must be passed by Parliament to enable them to do so, as legally they cannot do it."

A medical man, after a meeting held on behalf of Dr. Barnardo's Homes, said that he knew something of the good work done in them, although he had not seen the Homes, but he had read Dr. Milne's first paper in the *British Medical Journal*, and was so impressed by it that he adopted " Milne's Method " ; that he found it so satisfactory that other medical brethren joined in, and that last year it had saved their rates fourpence in the pound. Therefore he thought they ought to be liberal in their gifts to the collection.

I might fill many pages with such testimonials, but enough, surely.

Is there not something disingenuous in his " I submit that this is not an unusual example of a village outbreak of scarlet fever " ? Where, I ask, will he find such a record among so many children, a record only exceeded twice during these thirty years ? An account of the worst I have given, and it was criticized in the *Medical Annual* of 1910. On the other occasion the cases were not half so many ; while on no other occasion has it approached what is criticized. Where, I ask, is the school or village with 1,300 children with such a record ?

I must also note that our critic says that I use 1 in 20 instead of 1 in 10 carbolic oil. Other points are equally worthy of criticism, but I must pass on.

" We have given the facts, but," as Lord Beaconsfield said, " we are not bound to supply the understanding."

Had I not corresponded with my reviewer in 1910, I would not have thus written. For my reviewer alone of all I have met or who have written to me says that this method, based on thirty years' experience, by other writers declared to be revolutionary, epoch-making, and the greatest event in medicine, *is of no value.*

Much the same applies to our leading medical journal which, while thousands have waited for its declaration, has acted like Baal in the sarcastic words of Elijah, "He is a god ; either he is talking, or he is pursuing, or he is on a journey, or peradventure he sleepeth, and must be awaked." But there was no voice nor any answer in its many hundreds of leaders and leaderettes. Surely " something is rotten in the state of

Denmark." Would it were cold or hot, and not this spueing indifference while so many long for its guidance.

The advantages claimed for the home treatment and prevention of scarlet fever have been most fully realized by thousands of medical men in this and in other countries. This, however, is neither the time nor the place for substantiating the same. An opportunity for its triumph will come before the fall of the year. I shall now give some details of the treatment as carried out in both scarlet fever and measles.

When first I adopted the method of treatment as laid before the medical public, I used carbolic oil 1 in 10. For twenty-seven years, however, I have used pure eucalyptus oil. During the first four days in these cases, commencing at the earliest possible moment, I have pure eucalyptus oil gently rubbed in, morning and evening, all over the body, from the crown of the head to the soles of the feet. Afterwards this is repeated once a day until the tenth day of the disease. The tonsils and pharynx I always swab with 1 in 10 carbolic oil every two hours for the first twenty-four hours, very rarely longer. In swabbing I place a firm mop of cotton-wool, the size of the last joint of the patient's thumb, on the end of a pair of forceps, or tie on a pencil, &c. I thoroughly soak the wool in the carbolic oil, and then swab the tonsils and the pharynx as far up and down as possible.

The advantages realized by this method, not only in my experience, but in that of every private practitioner who has carried out the method in scarlet fever, are :—

(1) When this treatment is commenced early—and this is vital—secondary infections never occur, and consequently complications are unknown.

(2) With this treatment carefully carried out the children may occupy the same room, and even the same bed, without risk of infection.

(3) The economy of the treatment. An ordinary case in isolation costs £10 ; this, perhaps, 2s. Therefore it means a saving of millions of pounds annually.

(4) Its household economy. The mother is free to attend both the patient and her duties. The father is free to go to work without the slightest risk, and the children equally free to attend school.

(5) No after-disinfection is necessary, for the disease having been destroyed, nothing remains.

(6) I have frequently been asked about the disinfection of the patient's spoons, crockery, &c., as these are such a trouble in an ordinary household. Well, the fact is, there is no disinfection, or in

any way a keeping of them apart. They are all collected together, washed in the ordinary way, and served out indiscriminately on the next occasion.

Thus there is no interruption of the domestic, scholastic, or business affairs of the household.

These advantages I now fully claim, as a result of the same treatment, for measles. The treatment I have used for twenty-five years in measles—with the exception of the carbolic oil, which I have used for less than half that time.

One point only in the above claimed advantages I have not proved in measles—that the children may sleep in the same bed. This, however, I have proved, that they may safely occupy and sleep in the same room with 750 ft. of cubic space, and with beds so close that the ordinary-sized children can hand toys from one to the other. Again, with measles, as with scarlet fever, there is no necessity for destroying the toys, books, &c. These may be safely interchanged as soon as the child is able to play.

I quote the following from the *British Medical Journal*, the *Medical Times*, and *Proceedings of the Royal Society of Medicine* :—

The importance of this method of treatment is shown by a question a former President of the Local Government Board asked me several years ago : " If I could explain how it was we had so few epidemics among the children under my care in Dr. Barnardo's Homes, and how, when we did have cases, they were so few in number, while in our schools we have so many epidemics, and these affecting half, or sometimes three-fourths, of the children in residence." It is further shown by a medical officer of health and chief lecturer in one of our first medical schools who, as we drove together to see some of the cases, asked how many beds we had in our isolation hospital in the village homes with some 1,300 children. I told him we had not one, or isolation accommodation of any kind. " You were bound to have," he remarked, " anything from 150 to 300 cases needing isolation (e.g., measles) every two or three years." He was greatly surprised that for some twenty-five years we had not had twenty such cases at one time.

I quote from former papers the following :—

*British Medical Journal*, October 31, 1908.[1]—For several years I have adopted the same method of treatment with regard to measles. The great difficulty found in such is the infectious nature of the malady before any signs are definitely manifest. When, however, the eucalyptus oil is used at the earliest possible moment, I have found that it has entirely stopped the epidemic

[1] *Brit. Med. Journ.*, 1908, ii, p. 1333.

spreading. When such a case has occurred I have kept the aroma of the oil in the rooms, and had a little sprinkled on the beds day by day, as well as on a handkerchief in the chest of the children. This has, I have found, entirely limited the epidemic to at most one or two cases who had been playing with the first child on the attack coming on, while in many instances it has cut the epidemic short. This spring an outbreak occurred in Her Majesty's Hospital in a ward containing twelve children, all under four years of age. The child was isolated and the above plan carried out. Three cases occurred on the fourteenth and fifteenth days, but none afterwards.

*British Medical Journal*, January 16, 1909.[1]—I should like to be permitted to add a word of warning on the subject of measles. Since my paper was written measles appeared in our receiving home, where sixty children were in residence. The epidemic was limited to the first infection—that is, to cases occurring within twelve to sixteen days after the first appearance. Yet I cannot speak with the same confidence in regard to measles as with regard to scarlet fever. I should like to emphasize this, because correspondents have written to me as if I recommended my line of treatment being pursued with equal confidence in cases of measles as in cases of scarlet fever.

British Medical Association paper, July, 1910.[2]—Measles will, I trust, soon be in line with the experiences I have given of scarlet fever.

I quote from reprint from the *Medical Times*, from my Oxford paper, November 24, 1910 :—

You may have noted that in this paper, as in my other publications, I have referred to measles. The success of this method in measles is nearly equal to what I have realized in scarlet fever, only I have not fully succeeded in keeping them together from the first. Yet for many years there has been no spread except occasionally the first infection.

In my earliest work in Dr. Barnardo's Homes, and among the same class of children, we had the usual experiences. We had to close the schools and turn the class-rooms into wards, and some of the cottages into a hospital, for in one epidemic we had 144 cases when the number of children was 600. Now we have over 1,300 in the same home, yet for twenty-five years we have not had twenty cases at one time, and this only on two occasions. Dr. Armstrong read a paper on "Measles" when I read one on "Scarlet Fever" on November 26, 1909. He stated that in twelve years he had 3,260 boys in the school and 612 cases of measles. We had 600 girls in Dr. Barnardo's Village Home twenty-five years ago, 11,000 have been admitted since, while over 1,300 are now in residence. During all these years we have had 234 cases of measles.

[1] *Brit. Med. Journ.*, 1909, i, p. 185.
[2] *Brit. Med. Journ.*, 1910. ii, p. 594.

This I attribute entirely to the method of treatment we have carefully carried out. For many years I used eucalyptus oil only, as in the treatment of scarlet fever. In more recent years I have adopted the plan of treating the tonsils and pharynx with 10 per cent. carbolic oil, as in scarlet fever cases, every two hours.

The advantage of this treatment is that for these twenty-five years we have had no epidemic. Neither have we found cases pass beyond the first infection. Further, that the virulence of the disease is greatly modified, and dies out very rapidly. For I fail to find any secondary infections of measles in my records of these twenty-five years.

In some of our larger homes, where the children attend many schools (e.g., from one home they attend eleven different schools), to guard against outside school infection, during these tests, I kept the children from school, and sent them for hours daily into the fresh air for games. The trouble has not passed the first infection for years, whereas on their return to school it reappeared.

Both in the hospital of Dr. Barnardo's Homes, as well as in the Girls' Village Home, Barkingside, I have this year, and on different occasions, had eight cases of measles, in the same ward, or in the same bedroom with little children who had no previous attack of measles to protect them, yet there was no infection or complication. These children were from 2 years of age and upward.

The experiences of the past few months may be shown thus :—

In one of our homes for 120 boys, from 5 to 8 years of age, a case of measles occurred. To prevent outside infection I kept the boys from school. Three first infections followed, which were very mild, then completely ceased. After their return to school fresh cases appeared.

In our deaf and dumb home a case occurred. He was a delicate child and nearly blind. For more careful nursing he was removed to our hospital and placed in the babies' ward. Three first mild infections occurred in the home, then the trouble ceased. The case taken into the hospital was placed in the babies' ward, after being treated with eucalyptus and carbolic oil, and a gauze curtain placed over him. There was no infection of any child in the ward, although the ages were from $2\frac{1}{2}$ to 5 years of age, and unprotected.

In one ward at the infirmary of the Village Home two cases were, with four others, from 7 years of age. In another was one case, with five others, from 7 years of age. In the third ward was a case, with five others, from 3 years of age. These children were found to have been unprotected by a previous attack. In one of the cottages from

which these children were taken there were two mild cases of first infection.

On March 4 a case of measles occurred in a ward with fifteen others. He was treated at once. The rash appeared in full. Naturally we were anxious as the twelfth day approached. We watched the others closely until the sixteenth day was passed. There was neither infection of others nor any complication.

Now what shall I say in regard to those cases I now come to deal with ? When I visited one of our Homes, with over one hundred little boys in residence, on March 8, I found one very delicate boy in bed, where twenty-three other little fellows slept. The ages of these are : Seven are 5 years of age, ten are 6, two are 7, three are 4, one is 12, and one is 14 years old. The two older boys do part of the work in the Home. The boy's temperature was over 103° F., coryza and well-marked Koplik's spots were present. The gums were red, and the soft palate slightly spotted with small red centres. He had not, however, the slightest appearance of any rash. I felt here was something for you to-night. He was treated in the dormitory with these twenty-three boys sleeping in the same. He had eucalyptus oil gently rubbed in over his body, 1 in 10 carbolic oil to his throat, and a thin muslin curtain over his head and chest like a small tent, and sprayed with eucalyptus. All the boys who slept in the dormitory were kept from school, and had eucalyptus as I have described—viz., a little sprinkled on their bed, and a little on their handkerchief in their chest, morning, noon, and evening. By mistake the other boys in the other part of the Home did not have the eucalyptus thus for some eight days later. The usual method was carried out in one part of the Home, while in the other special dormitory the new method was used. Thus the two methods are seen side by side.

On inquiry into their history one was found to have had measles in this same dormitory three months before. All the others were unprotected by an attack while with us. On admission to the Homes[1] the children's histories are carefully inquired into, and an attack of measles or infectious disease recorded. From these records twenty are unprotected by a previous attack. Now what is the result ? Twenty-four hours after I first saw the boy the rash began to appear. He had a very severe attack, as will be seen from the accompanying temperature chart. He was in the dormitory some five days where these twenty-three boys slept, twenty of whom were unprotected. Moreover, on the

[1] See *The Child*, March, 1911.

first and second day he was joined by two fresh cases of measles from the other part of the Home. They were treated exactly as the other. Then, because the lad was so delicate, and on account of the intense cold and the difficulties of keeping the temperature at 60° F., the three were moved to a warmer dormitory. By the sixth day two more cases occurred in this dormitory. By the same time, from the other part of the Home, up to the sixteenth day of the outbreak we have altogether eleven cases.

The boys in the babies' dormitory were kept all this time from school. All the household, however, mingled freely at play and at meals. Could anyone devise more crucial tests than those I have laid before you to bring out clearly the contrasts of the methods of treatment? Of the result in these two classes of cases that I have laid before you I had no doubt. More cases appeared from the other part of the Home. After the infections contracted before the use of the eucalyptus oil become manifest it will cease among the others, while the cases thus treated will be mild. What about those in the babies' dormitory from the twelfth to the sixteenth day after having had three measles cases sleep in the same room night after night, and mingling day by day with those who were in the most infectious stage?

You will not wonder that I thought of it some of these nights until the morning began to break! You may guess how eagerly I watched these unprotected boys as I visited the Home from time to time. Now if this trial of the two systems of treatment side by side failed I knew I could throw myself on your forbearance and receive your sympathy, as there are so many chances of failure. But to-day, gentlemen, is the end of the sixteenth day, and I thank our Heavenly Father that it is a complete triumph all along the line.

Should, however, any of you desire to see these three boys I give you a *cordial invitation* to visit the Home as we may arrange during the next few days; or our Hospital, where, in addition to the cases mentioned, there is a scarlet fever case in a ward with fifteen others—all without infection or complication; for it must be to all of the deepest interest to know the final results.

The tendency to complications is greatly lessened by this method of treatment with eucalyptus oil, and with the more recent use of carbolic oil 10 per cent. for the tonsils and pharynx. I may say that, from my experience, it has proved equally efficacious, as it has proved to be in scarlet fever cases: for, with the exception of broncho-pneumonia in very delicate little children, such are unknown. Even the broncho-

pneumonia is, I fondly hope, a thing of the past. When the patient is first discovered, if possible when suffering from coryza, or if Koplik's spots are visible before the rash appears, as well as when the rash is appearing or out, the patient is treated at once and put to bed. A large bed-cradle is placed over the child's head and chest. This is then covered with a light fleecy gauze and sprayed or moistened, from time to time, with eucalyptus oil. This is done to entangle the phlegm, and prevent the germs in coughing being carried beyond the disinfecting power of the eucalyptus oil, and so infecting the other children; for in coughing these germs may be carried to the distance of 20 or 30 ft. It is a great advantage that the child is thus able to see all that is going on around.

For the healthy children who have been exposed to infection I have a little eucalyptus oil sprinkled on their beds at bedtime, and in the morning, noon, and evening a little placed on a handkerchief and carried in their bosom. Thus they have a continuous aroma of eucalyptus being inhaled.

It is to this treatment that I attribute the fact that for all these years we have required no isolation hospital for these diseases for the children under my care. In corresponding schools the necessary isolation accommodation is, I believe, from one-third to one-half, or one-half to two-thirds of the number of children in residence. The economical saving thus effected is very great, while the benefits to the patient are incalculable. It is worthy of note, too, that in these cases I have given our cubic space is only about 750 cub. ft., while in the isolation hospitals it is 2,000 cub. ft. and the beds 15 ft. apart.

As in the treatment of scarlet fever, I asked that this might be taken up and tested thoroughly, under careful supervision, for I had not the slightest doubt of its triumph. This has been abundantly realized, so now I ask that my medical confrères do the same for measles. Neither for this result have I any doubt. It may be that ere long something will have to be said about diphtheria.

In regard to these three diseases—scarlet fever, measles, and diphtheria—I would again most strongly urge on all what I have dwelt fully upon in my book, the serious and terrible danger that lurks in pencil infection. In so many of our schools the children have no pen, pencil, or ink-eraser of their own, yet twice daily, at least, these are used. Now every child, as we did, puts the pencil in its mouth. Then they are collected, and indiscriminately handed out on the next occasion. Could the old enemy devise a more certain method of disseminating disease?

Let me now say in conclusion that for over thirty years my work has been among poor and needy children. Had I my life's work to choose again, I could desire nothing better. For surely personal profit is not to be the aim or end of our profession? Surely in ministering to the needy sufferers are we increasingly to devote ourselves. Here, then, I would again reiterate my plea for the children. Let us help on this grand work among them. Let us aim to have them in every section at their healthiest and best—not mentally crammed and physically unfit, because untrained in work. Let us ensure muscular training as well as mental, for without the first we cannot have the last continuously. Let us take the poor and suffering ones, as I have pleaded, before they are seriously ill, and nurse them back again, in these our unnecessary isolation hospitals, to health and strength. Let us give them when necessary a change to the seaside, for I have found such kindly care and change in the earliest stages of failing health do more than anything to prevent tuberculous and other troubles. By careful weighing, as I pointed out years ago, we can discover that something is going wrong long before parent or regular medical attendant can detect the failure. Let us, when necessary, adopt the tuberculin system of treatment so ably advocated, and proved, by Camac Wilkinson, in addition to the kindly and early treatment I have pleaded for in these hospitals.

(The discussion on this paper was adjourned until May 26.)

# Section for the Study of Disease in Children.

April 28, 1911.

Dr. EDMUND CAUTLEY, President of the Section, in the Chair.

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## Case of von Jaksch's Anæmia.

By SHEFFIELD NEAVE.

B. S., AGED 1 year and 10 months.

This case has the syndrome of signs which are considered by some to be caused by a disease which has a definite entity and is named as above, viz.:—

(1) Blood-count (on admission):—

| | |
|---|---|
| Erythrocytes ... ... ... ... ... | 2,570,000 |
| Leucocytes ... ... ... ... ... | 19,300 |
| Hæmoglobin ... ... ... ... ... | 40 per cent. |
| Poikilocytosis, normoblasts, megaloblasts. | |
| Differential count:— | |
| Polynuclears ... ... ... ... | 29·0 ,, |
| Lymphocytes (small) ... ... ... | 60·6 ,, |
| ,, (large) ... ... ... | 6·0 ,, |
| Eosinophiles ... ... ... ... | 0·8 ,, |
| Basophiles ... ... ... ... | 1·0 ,, |
| Myelocytes ... ... ... ... | 2·4 ,, |
| ,, (eosinophile) ... ... ... | 0·2 ,, |
| | 100 ,, |

(2) Much enlarged spleen, lower border level with umbilicus, and notch well marked.

(3) Liver lower border two finger-breadths below ribs.

(4) Distended abdomen.

(5) Pale and waxy skin.

(6) Glands in groins and left maxilla size of small nut.

There are decided signs of rickets and the Wassermann reaction is positive in respect of syphilis.

The case has improved under arsenic and iron treatment and mercury (commenced later). It is shown with a view to a discussion as to whether either the syphilis or rickets, or both, are the cause of the signs and symptoms; or whether, in addition to these diseases, a third is to be added, viz., the anæmia of von Jaksch.

## DISCUSSION.

Mr. SHEFFIELD NEAVE added that the history before admission on February 11 last was difficult to obtain as the mother could not speak English, being apparently a Jewess of foreign extraction. It appeared that the child had been bottle-fed and was ill for some months, being constipated and having a bad appetite. There were no other children and no miscarriages; the child being illegitimate. The blood-count had altered while the child had been in hospital in the following respects: Erythrocytes had increased from 2,570,000 to 4,100,000; the leucocytes had decreased from 19,300 to 14,000; normoblasts had increased from 1·2 per cent. to 3 per cent.; megaloblasts had decreased from 5·8 per cent. to 2 per cent.; hæmoglobin was now 44 per cent. as compared with 47 per cent. The main change in the differential count of the leucocytes was that the polynuclears and lymphocytes were 45·3 per cent. and 49 per cent. respectively, instead of 29 per cent. and 66·6 per cent., or nearly equal, instead of the polynuclears being about double in number. The large mononuclears had, however, increased from 6 per cent. to 16 per cent. The enlargement of lymphatic glands in the groins and maxilla was about the same. The craniotabes observed on admission had disappeared. There had been the usual irregular sequence of small rises of temperature. Mr. Neave had never observed any hæmorrhages, bruit over the spleen, or nystagmus, and the gums appeared to be natural. The signs of rickets were: Harrison's sulcus, X-bun skull, epiphyses enlarged, craniotabes, wide fontanelles, only four teeth, sweating, cries when touched. The case was interesting, in that there were marked signs of rickets, and the Wassermann test for syphilis was positive. It therefore gave an opportunity for discussing the question as to the cause or causes of the child's condition, and whether we should assign a definite entity to this anæmia. The blood-count itself might occur in any severe secondary anæmia, while the enlargement of the viscera might be due to syphilis or rickets, though the particularly large size of the spleen was not very common in syphilis, and still less so in rickets. He thought that Hodgkin's disease, pernicious anæmia, leukæmia, and malaria might be excluded. For his part, he was quite of an open mind as to the ætiology. It was almost impossible actually to prove the negative that von Jaksch's disease did not exist, and yet there did not seem to be sufficient evidence to prove its existence merely by a combination of signs which were commonly caused by other diseases.

Dr. WALTER CARR said the case raised a question which had been discussed for many years past, and he doubted whether the result of the discussions was any substantial advance. He thought the child illustrated a condition which was a separate disease, distinct from rickets and from syphilis, and yet connected to some extent with both those diseases. In these children one nearly always found some evidence of rickets, but there was no necessary relationship between the severity of rickets and the size of the spleen, or the degree of anæmia. The splenic enlargement might be very marked and the anæmia very profound, and yet the rickets quite slight. On the other hand, in many cases of severe rickets there was no suspicion of splenic anæmia. He believed the relationship between splenic anæmia and rickets was very similar to that between infantile scurvy and rickets; that is, these diseases were due to separate causes, but the causes frequently occurred together. There was a further relationship of the condition with syphilis. In the majority of cases of splenic anæmia syphilis was absent, but it was present in a considerable minority of the patients, and possibly predisposed to the disease. Certainly splenic anæmia might occur independently both of syphilis and of rickets. The real cause of the condition, he considered, was some further factor, the nature of which had not yet been determined.

Dr. ROBERT HUTCHISON agreed in the main with what Dr. Carr said as to the relationship of this disease to syphilis on the one hand, and to rickets on the other. As that speaker rightly said, both these diseases might act as predisposing causes. But anybody who had studied many such cases must be convinced that there was a third, an unknown, factor. Some years ago he collected the records of a large number of cases, and in about half of them he could exclude congenital syphilis, as far as that was possible before the days of the Wassermann reaction. Rickets might be present in any cachectic condition; deficient feeding, for example, might produce both the rickets and the anæmia. That seemed to be as near as one could get to the true nature of the disease. Probably several distinct conditions were at present included under the same title. Von Jaksch's anæmia was an unfortunate term; it was better to speak simply of the "splenic anæmia of infants." Some of the cases were closely allied to true myeloid leukæmia as met with in adults, and the blood changes closely approached to it. His own impression was that the disease was now much less common than fifteen years ago. The same might be said of the extreme cases of rickety deformity; they were now much less often seen. Infantile scurvy was also declining.

Dr. BELLINGHAM SMITH asked as to the treatment of such cases. It had been suggested that in splenic anæmia benefit could be derived from removal of the spleen. He would like to ask the surgeons present whether such treatment would be desirable in the case of an infant of that age.

The PRESIDENT (Dr. E. Cautley) remarked that it was always dangerous to accept the coincidence of two diseases as proof of mutual interdependence. One constantly found the association of rickets with an enlarged spleen, but he did not believe that rickets was a cause of enlarged spleen, or of enlargement of the liver. Sometimes such enlargements in a rickety child were merely apparent on account of the organs being depressed, or the enlargement was due to some secondary factor. He was very loth to believe there was any direct connexion between rickets and scurvy, though no doubt the diet which produced scurvy was conducive also to rickets. Von Jaksch's anæmia was in some cases associated with rickets, and was possibly predisposed to by this disease. But it was probably due to some other factor. He agreed with Dr. Hutchison that the disease now appeared to be less common. This probably meant that diagnosis was now more exact, and cases of enlargement of the spleen were more carefully differentiated. It was rare to find a typical case of von Jaksch's disease. He was also convinced that syphilis had nothing to do with it, for in most cases there was no evidence of inherited syphilis. One should be very careful to exclude other possible causes of anæmia associated with splenic enlargement before stating that a case was one of this disease.

Mr. NEAVE, in reply, said he supposed most people would consider it unjustifiable to puncture that spleen and cultivate the result, though others would regard it as a fairly safe proceeding. The parasite of kala-azar had been discovered in this way, and it was not an uncommon practice until there were several accidents in Indian natives. He would be glad of advice in the matter. As to the result of the discussion, he considered it demonstrated that medicine was not an exact science, and the question involved remained a matter of opinion.

## Case of Congenital Syphilis treated by "606."

By J. L. BUNCH, M.D.

THE boy was admitted under my care at the Queen's Hospital for Children on January 2, 1911, when 14 weeks old. When 3 weeks old he developed a running from the nose, which increased until the nostrils became swollen, and a profuse muco-purulent rhinitis was present. A papular eruption also showed itself on the buttocks, thighs, soles of the feet, neck and face. Mucous tubercles appeared round the anus and at the angles of the mouth, and in these Dr. Woodforde, Pathologist to the Queen's Hospital for Children, found large numbers of the *Spirochæta pallida*. When admitted to the hospital the child

showed evidences of malnutrition. His weight was 4 kilos. He had not been given mercury in any form.

On January 4 I gave him a dose of 0·04 grm. freshly prepared salvarsan intramuscularly in the subscapular region. The dose was, therefore, one of 0·01 grm. per kilo of body-weight. On January 5 the temperature rose to 100° F., and there was a well-marked swelling round the point of injection. The child improved considerably from day to day, and by January 19 the mucous tubercles, both round the anus and the mouth, had quite gone, and the snuffles had ceased. The skin was clear, except for some mottling and discoloration at the site of the previous lesions.

The Wassermann reaction was still positive on March 29.

DISCUSSION.

Dr. BUNCH said he showed the case because it differed from the ordinary run of those treated with "606." He asked for the opinions of members as to what should be done. Should another dose have been given of the same amount, or a smaller dose, or the child put upon mercury? In spite of the symptoms having disappeared, the Wassermann reaction was still positive. In the case of such a young child it would probably be difficult to be sure of getting the "606" into a vein, although such intravenous injections had already been successfully carried out in infants.

Dr. F. PARKES WEBER said he did not see why there should be any difference in the case of the infant as compared with an adult in regard to the question raised by Dr. Bunch. Some doctors preferred to repeat the salvarsan, even to three times. Others proceeded to give mercurial treatment.

## Congenital Heart Disease without Murmur, and with a Family History of Congenital Cyanosis.

By F. PARKES WEBER, M.D.

THE patient, I. E. H., a girl, aged 2½ years, is said by her mother to have been weakly from birth. She easily gets out of breath, and there is cyanosis of the fingers, toes, nose, and lips, which varies in degree from time to time. No cardiac murmur can be detected, but the apex beat is slightly displaced to the left, and by Röntgen ray examination the heart appears to be somewhat enlarged. She cannot yet walk.

The cyanosis and tendency to get out of breath date from birth. The mother, who looks a healthy woman, has had four other children, and no miscarriages. Two of the four other children were cyanotic from birth, and died at the age of 5 months and at the age of three days respectively. The two remaining children, aged 9½ years and 10 weeks respectively, are living, and are said to have shown no signs of heart disease. In the patient's case the existence of an aperture in the interventricular septum or in the interauricular septum, or in both, is highly probable.

These notes were taken in January, 1911. The child died at home in March, 1911, of measles and pneumonia. There was no necropsy. The skiagram only was shown at the meeting. Dr. Weber thought that in cases of congenital heart disease the existence of cyanosis without any murmur usually indicated that the congenital defect in the cardiac mechanism was of a grave type.

## DISCUSSION.

Dr. HUTCHISON said that the cases in which there was cyanosis without a murmur were of bad prognosis. His opinion was based upon a number of cases which he had followed out and which had a short life. He thought Dr. Weber's inference was correct, that there was a large mechanical defect. The larger the defect, the less the tendency to a murmur, even in the adult.

Dr. LANGMEAD said he had shown a case of a child with marked cyanosis a short time ago, before the Medical Society of London, in whom also there was enlargement of the heart, but no bruit. In connexion with that case he had looked up the catalogue of the museum specimens at the Hospital for Sick Children, Great Ormond Street, and found that out of thirty-six specimens of congenital heart disease, there were, in that museum, three removed from patients who, during life, had shown much cyanosis but in whom no murmur had been heard. In each there was something definitely wrong with the interventricular septum and with the pulmonary artery. In two of the cases the latter was occluded. In the other case there was transposition of the great vessels. In two there was only one ventricle, the septum being entirely suppressed, and in the other there was a large hole between the ventricles, probably too large for any murmur to be produced.

## Congenital Heart Disease with Congenital Malformation of the External Ear.

By F. PARKES WEBER, M.D.

THE patient, W. J., a boy, aged 4 years, has a congenital malformation of the right external ear (*see* illustration), but presents no other abnormality, excepting in regard to his heart. The right side of the heart extends somewhat too far to the right, as shown by the cardiac dullness and by Röntgen ray examination, and there is a variable systolic murmur, best heard over the lower portion of the cardiac area, just to the left of

Congenital heart disease with malformation of external ear.

the sternum. The murmur does not commence immediately after the first sound, but occupies the second portion of the systole, ending with a loud second sound. There is no cyanosis, dyspnœa, or œdema. There is no evidence of congenital syphilis. The boy is the second of four children, and there is no history of congenital deformities in any other members of the family. He has had good health, except for whooping-cough two years ago, and measles with "pneumonia" recently. The murmur may possibly be connected with a patent foramen ovale. Cyanosis in such cases is by no means necessary.

The PRESIDENT reminded the meeting that Dr. Garrod had written an admirable paper in which he brought forward a considerable number of cases which showed the association of congenital morbus cordis with other malformations.[1]

[1] *St. Bart. Hosp. Rep.*, 1894, xxx, p. 53.

## Chronic Pyæmia of Five Years' Duration following Suppurative Epiphysitis of the Upper End of the Humerus.

By Douglas Drew, F.R.C.S.

In February, 1906, the child met with an abrasion of the right knee; a week later the left shoulder became swollen, and an abscess formed, and was opened. This was rapidly followed by suppuration of the right elbow- and knee-joints, and abscesses in connexion with the bones of both forearms, for which he was sent to the Queen's Hospital. During the past five years he has had thirty-eight abscesses opened. Some of them have been due to osteomyelitis, but the majority have been subperiosteal. In a few of the earlier ones there was a small sequestrum, but in the later ones no necrosis was present. The intervals between the abscesses varied from one to seven months. In 1908 Dr. Bunch kindly gave the child a course of autogenous vaccine, but without any appreciable effect, and during the last twelve months Dr. Woodforde has given him injections, in spite of which he has within the last month developed two more abscesses in the forearm. The interesting feature about these last two abscesses is that no micro-organisms could be grown from them, which suggests that the poison is gradually becoming less virulent. The micro-organism found in the abscesses was the *Staphylococcus pyogenes citreus*.

It should be noted that the movements of the knee- and elbow-joints which suppurated are normal.

### DISCUSSION.

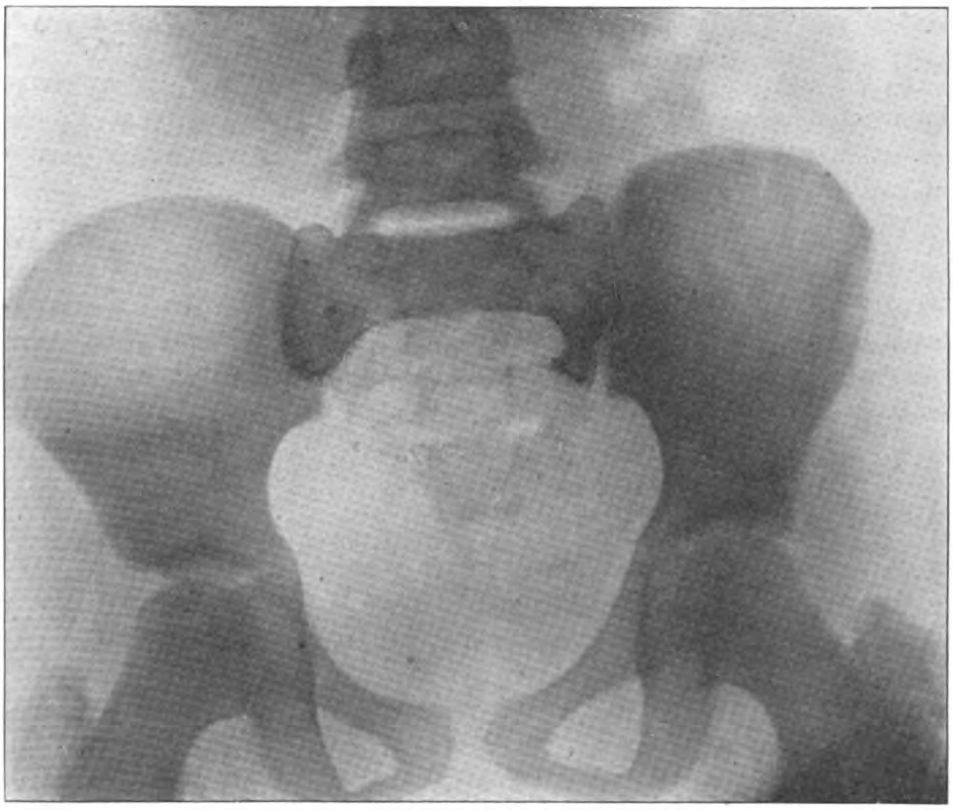
Mr. Drew, in answer to Mr. Milner Burgess, said that no heart disease was noted; he had not himself examined the heart.

Mr. Lockhart Mummery said his experience agreed with that of Mr. Drew, that joints in children which suppurated became movable after the treatment. The only instance he knew of forming an exception to the rule was that of a child, aged 8 years, on whom he operated for acute osteomyelitis of the upper end of the femur, and he had almost complete ankylosis in the hip-joint. But that child was living in the country and was much neglected surgically for six months.

## A Case of Asymmetry of the Pelvis (Naegele). Partial Congenital Suppression of Left Lateral Wing of the Sacrum. Scoliosis.

By A. H. TUBBY, M.S.

P. S., AGED 12 years, attended the Royal National Orthopædic Hospital in January, 1908, complaining of weakness in the back. On



Partial congenital suppression of the left lateral wing of the sacrum.

examination, there was muscular and ligamentous weakness of the back. The left posterior superior spine of the ilium was situated at a shorter distance from the middle line than the right. On accurate measurement the distance of the left posterior superior spine of the ilium from the middle line was $1\frac{1}{4}$ in. and the right was $1\frac{5}{8}$ in.

A skiagram was taken which showed partial suppression of the left lateral wing of the sacrum (*see* fig.).

In September, 1908, a scoliosis of the dorsal spine to the right had developed, with considerable rotation backwards of the right ribs and the right scapula, with commencing rotation in the lumbar region.

## Double Congenital Club-Hand of the Radio-Palmar variety, with Absence of Radius on both Sides.

By A. H. TUBBY, M.S.

C. P., AGED 1 year and 8 months. An unusual case, inasmuch as the development of the metacarpal bones and phalanges appears to be perfect. As is usual in these cases, the ulna is curved and greatly thickened, especially towards its lower end.

Various measures have been proposed with the object of remedying this condition. The operation practised by Mr. Tubby on three occasions has consisted in splitting the ulna vertically for about the lower two-thirds, drawing outward the outer fragment and fixing its lower end with silk-worm gut to the outer part of the carpus. The results are: to steady the wrist and hand, and to increase its range of flexion and extension. Naturally, pronation and supination cannot be restored.

## Malformation of Femur.

By O. L. ADDISON, F.R.C.S.

THE child is $2\frac{1}{2}$ years of age. The right leg is smaller than the left, about 2 in. shortening. The femur is much curved, and there is a marked degree of coxa vara. The leg was first noticed to be shorter than the other when the child was 10 months old. No history of injury.

### DISCUSSION.

The PRESIDENT said the case recalled to his mind two which he showed many years ago at a meeting of the Medical Society. They were adults, and in both there was much shortening of the humerus, with no other bony defect. He believed it was due to epiphysitis in early childhood, which had

interfered with the growth of the bone. But in the present case he thought the condition was due to rickets. The coxa vara was in favour of that, and the bending of the bone suggested a greenstick fracture.

Mr. LOCKHART MUMMERY thought it was a missed fracture of the head of the femur in early infancy, either a fracture of the upper end of the femur involving the epiphysis, or direct separation of the epiphysis. The exact cause of the bend was difficult to explain on that assumption, but possibly if separation of the epiphysis occurred with slight displacement, the deposit of bone at the upper end might occur out of the true line, and there would be a curve at the upper end.

Mr. DOUGLAS DREW said his view agreed with that of Mr. Addison, because the epiphysis of the femur was somewhat smaller, and it would be in keeping with the fact that the limb was less developed. There were 2 in. of shortening, and he did not think that would occur from injury of the upper epiphysis in so young a child. There was no evidence that there was a fracture of the shaft to account for the bending, but if there had been, it would not account for the shortening which was present.

Mr. ADDISON, in reply, said the facts that it was unilateral, that there were 2 in. of shortening, and that the child showed no signs of rickets, were against the case being one of rickets. He thought it more likely that it was congenital than that it was due to injury, for the reasons given by Mr. Drew. The deformity was first noticed at the age of 10 months. The labour was an easy one, but version was performed by a hospital obstetrician, who would have noticed a fracture if there had been one at that time.

## Tumour on Back, probably Dermoid.

By O. L. ADDISON, F.R.C.S.

A SWELLING the size of a fowl's egg has been present since birth in the middle line over the lower cervical vertebræ. It is covered by normal skin, and on the apex is a small opening, from which there is a whitish, muco-purulent discharge. In the base of the tumour there is a nodule about the size of a hazel nut; it feels hard like cartilage or bone, and is not fixed to the vertebræ.

Mr. ADDISON said that he intended to remove the tumour at the earliest opportunity; he would show the specimen, and submit a report of it to the Section.

## A Preliminary Communication on Syphilis and Mental Deficiency.

By E. Bellingham Smith, M.D., & A. W. G. Woodforde, M.D.

The relation of syphilis to mental deficiency has always been a much-debated question. At a meeting of this Society to discuss congenital syphilis in all its aspects, Dr. Shuttleworth, quoting from his own experience and that of other authorities, stated that statistics showed that only 1 to 5 per cent. of cases in institutions could be shown to have a syphilitic inheritance. On the other hand, there are other authorities who are inclined to place it at a much higher figure than this. It is profitless to discuss all these figures, which were based on the naked-eye evidence of syphilis in the child, or on a history of syphilis in the parents. Recent research has now placed us in a position to approach the subject in a more scientific and accurate way. In Wassermann's reaction we have a means at hand which indicates the presence of syphilis, past or present, in no uncertain fashion. With this weapon we have attempted to attack the difficulties in regard to the influence of syphilis in the production of mental deficiency.

Syphilis in a child may be acquired or congenital in origin. With acquired syphilis we at present have no concern. With regard to congenital syphilis, it is generally held that transmission to the fœtus only occurs after infection of the mother; in other words, direct infection from the father to the fœtus is impossible without previous infection of the mother. Such, however, has not been proved.

Assuming for the moment that infection can occur from either or both parents, and that such infection may give rise to mental deficiency in the child, there is yet another way in which syphilis can produce mental deficiency, without the actual infection of the fœtus with the virus itself. The presence of syphilis in one or other parent may induce defective vitality in the elements of that parent entering into the formation of the embryo. Such defective vitality might show itself in imperfect development of the cerebral system and consequently as mental deficiency.

No conclusion as to the share of syphilis in the production of mental deficiency would be justified, therefore, without an examination of both

parents, as well as the child affected. Working on these lines, we have investigated a number of cases to date, the results of which we had hoped to condense and place before the Section this afternoon. Unfortunately certain data are still lacking, and we have been compelled to defer the summary till later. We have, however, brought the notes of three cases, which we hope will prove of interest and perhaps be productive of discussion or criticism.

*Case I.*—W. W., a male, aged 3 years and 5 months, was brought to hospital at the age of 2 years and 9 months for convulsions. Patient is first child, and was born at full term. Until 6 months of age patient was quite healthy; no history of snuffles, no rashes. At 6 months patient could sit up well and had two teeth; at 1 year of age he could stand, and at 14 months was walking. He seemed quite intelligent, taking notice of things, and could always indicate what he wanted. At 2 years he could talk, making use of small words. From 6 months of age, however, until he was 2 years and 3 months old he was subject to sudden momentary attacks of giddiness, suggestive of *petit mal*. In these attacks his head would jerk forward suddenly while he was sitting on his mother's lap; later, when he could walk, these attacks caused him to fall forward on his face. When about 2 years and 4 months old he suddenly had a great number of very severe fits; since then the convulsions have been frequent by day and night. Patient has as many as nine or ten every day, and a like number at night. Since the first onset of the fits he has taken no notice of anything, is unable to sit up or even hold his head up; the eyes roll about in an aimless fashion, and he apparently neither sees nor hears; he slobbers and occasionally emits uncouth noises. There is no rigidity or spasticity. The knee-jerks are present, not exaggerated, but rather diminished; the plantar reflex is occasionally flexor, sometimes extensor. Emaciation is considerable, and if given solid food it remains in his mouth and he is unable to masticate or swallow it. When first seen, eight months ago, he appeared listless and inanimate, incapable of moving arms or legs. The size of the head, 19½ in. in circumference, and the shape, are normal for his age. Apart from his marked mental deficiency and loss of muscular power and wasting, there exists no evidence of past or present syphilis. Mr. Sydney Stephenson, who kindly examined the eyes of the child for me, reports that there are no gross changes in his yellow spot region and both disks are normal. The child was treated with mercury, iodide and bromide for the first four months, and for the last four months has had mercury, arsenic and bromides. The fits have steadily ceased under this treatment, and for a short time now he has been entirely free. He can now support his head and sit up by himself, and is able to move his arms and legs; the progressive emaciation, so marked at first, has ceased, and the child is now gaining flesh. His intelligence is, however, still practically *nil*, although his attention can be attracted by loud noises or a shining light. The mother of the child is an apparently healthy

woman. She denies any illness during her married life and has had no miscarriages; labour in this case was straightforward and no instruments were used. The father repudiates any suggestion that he has had syphilis or exposed himself to the risk of it. The grandfather on the paternal side died of alcohol at the age of 42 years. The uncles of the child are alcoholic. Dr. Woodforde has made a thorough examination of the blood in regard to the Wassermann reaction, and finds the reactions in the child and the father to be positive, while that in the mother is negative.

Cases II and III relate to brother and sister respectively.

*Case II.*—S. B. is a boy, aged 6 years. Was first noticed to have something wrong with him at 10 months old, when he was unable to sit up and took no notice of things. He was born at full term by a natural labour and no instruments were employed. He has never sat up properly, walked, or talked; has never taken notice of anything, and is subject to fits, varying in frequency and severity. When seen a fortnight ago (April 12, 1911), for the first time, he appeared a very undersized child with a tendency to microcephaly. The limbs are exceedingly spastic, muscles firmly and strongly contracted. The upper limbs are strongly adducted to the chest-wall, the forearms are flexed on the upper arms, and the hand on the forearm; the fingers are tightly clenched and the thumb is inverted. In the same way with the lower limbs, the thighs are firmly flexed on the abdomen and the legs on the thighs. Considerable force is required to straighten any of the limbs, and even then relaxation of the contraction is incomplete. The superficial and deep reflexes are all greatly exaggerated, and the plantar reflex is extensor. Owing to the contraction of the hamstrings there is marked displacement outwards of the heads of the tibiæ on the lower ends of the femora. There is an old greenstick fracture of the lower end of the left femur, which occurred during a severe fit. The spine shows a marked scoliosis to the right. Urine and fæces are passed under him. He displays no evidence of any intelligence or even reaction to auditory or visual stimuli. He rolls his head ceaselessly from side to side, uttering an intermittent whining cry.

*Case III.*—The sister of the above child is aged 1½ years, was born at full term, easy labour, no instruments. The child is well developed in all respects and appears, at first sight, an ordinary healthy infant. She can sit up, but cannot stand. She smiles and cries, but takes very little real notice of things. There are the same aimless side-to-side movements of the eyes, but she will follow a strong light and takes a temporary interest in a loud noise, however produced. The head is well developed, and in size is normal for her age. The fontanelle is closed, teeth are present, but there is a tendency to slobber. On further examination there is noticeable a slight generalized rigidity of arms and

legs, the knee-jerks are increased and the plantar reflex is extensor. Mr. Stephenson also examined this child for me, and reports no pathological changes present in the eyes.

In neither Case II nor Case III was there from the history or from an examination any evidence that could be definitely elicited as indicating the presence of congenital syphilis, nor is much information to be gleaned from the family history. Case II was the fourth child in the family. Case III is the sixth. The first child, a girl, was born dead at full term, after a long labour, in which instruments were used. The second child, a boy, quite healthy at birth, died of diarrhœa and vomiting at 5 months old. The third, a boy, aged 8 years, is alive and well and has never had any illness. We have examined this child and he exhibits no stigmata of congenital syphilis. There is slight notching of one of the second central incisors, but the teeth are not typical. The fourth child was Case II. The fifth child was a girl, quite healthy, who died of whooping-cough. The sixth child is Case III.

The mother of this family is a strong, healthy woman, and denies all history of illness during or before her married life. She has had no miscarriages. The father denies any infection with syphilis, and has been and is seemingly a healthy man. His parents were quite healthy, and there is no evidence of syphilis in his family.

The blood has also been examined in these two cases, and both children give a positive reaction. The mother is again negative and the father yields a positive reaction.

In the absence of any signs of history of syphilis, we think the first case would be usually classified as one of eclamptic or epileptic idiocy. The presence of a syphilitic infection, however, as indicated by the positive Wassermann reaction, suggests that the case is one of progressive mental deterioration, commencing with convulsions in infancy and due to syphilis. This type of case has been recognized and described as occurring in children the subjects of obvious congenital syphilis.

Cases II and III are to all appearances advanced and mild cases of spastic diplegia, and are of some interest as occurring in one family. We do not know that such a familial condition has been previously shown to be due to syphilis. Dr. John Thomson describes a progressive spastic diplegia and dementia in early childhood, occurring at a period earlier than juvenile general paralysis, and having its origin in congenital syphilis. But neither of these cases are progressive in any

sense, seeing that they have both been deficient mentally and physically since birth.

These cases are too few to base any conclusions on, but they suggest the following :—

(1) That mental deficiency may be the only evidence of syphilitic taint in a family, and that consequently syphilis is possibly a more frequent cause of mental deficiency than is usually suspected.

(2) That in the Wassermann reaction we possess a means of determining more accurately than by any other previous method the part that syphilis actually does play in the production of mental deficiency.

(3) That if the parents are to be believed, these cases suggest that it is the offspring of people who have been the subjects of mild, unrecognized or untreated syphilis, who are liable to show evidence of nervous instability or deficiency.

(4) That although it is highly improbable that anti-syphilitic treatment will cure mental deficiency, when once it is sufficiently pronounced to call for attention, it is important to recognize the underlying cause and initiate such treatment in the parents as may prevent the birth of other infected children or the recurrence of such a disaster as has occurred in the case of the family of Cases II and III.

Lastly, there exists no obvious explanation as to why the mothers in these cases afford a negative reaction. We can only infer that perhaps previous infection of the mother is not always necessary for the transmission of the virus to the child, or, what is more probable, that the reaction itself is not infallible, and that its presence or absence under certain conditions is governed by factors as yet unknown to us.

On this last point we should be grateful for the opinions and experiences of the Section.

## DISCUSSION.

The PRESIDENT remarked that the paper raised a very important question. If one could regard the Wassermann reaction as giving reliable information as to past syphilis, it would be valuable to apply that test in every case of mental deterioration, with the idea of treating the mother in her further pregnancies.

Dr. HYSLOP said such cases were always very interesting in connexion with the question of syphilis being congenital or inherited. Unfortunately,

statistics with regard to those cases were rather imperfect, from the fact that the effects of the inherited syphilis might not appear until later in life. Asylum physicians were accustomed to find in the early period of life that there were no indications of inherited syphilis, but at 10 or 14 years of age there might be early general paralysis. The actual meaning of that was not very clear. Considerable doubt had been thrown on the ætiology of general paralysis. All seemed to agree that there must be a previous history of syphilis. Some observers believed that in addition to syphilis there must be a history of prolonged treatment by mercury and iodides, and that in the absence of prolonged mercurialization there was no general paralysis. Therefore a point which should be raised was as to whether the parents were, in those instances, so treated. If sufficient and accurate data on this point could be obtained, on which to base statistics, it would be valuable. He was not able to say he had seen a case of mental deterioration associated with inherited syphilis in which the anti-syphilitic treatment had been carried out efficaciously in the parents. If, on the other hand, it had not been carried out sufficiently, and the child showed any tendency to mental deterioration, which one could assume to be due to the inherited syphilis, then in those cases they were usually instances of cerebral syphilis, and they tended to yield to anti-syphilitic treatment. It was known that in those who had had anti-syphilitic remedies applied in the first instance when they showed mental deterioration, directly the affection showed itself in connexion with the nervous system, the remedies were of no use; whereas if they had had no previous treatment, they gradually yielded to it. It was therefore very important to know whether in the parentage anti-syphilitic remedies had been applied, and whether, in spite of that treatment, there had been the inheritance of a nervous condition which could definitely be said to be due to syphilis.

Dr. J. D. ROLLESTON drew the attention of the Section to a recent paper by some Danish observers,[1] on mental deficiency and the Wassermann reaction. Among 2,061 cases of mental deficiency investigated in the towns and country of Denmark, only thirty-one cases, or 1·5 per cent., gave a positive Wassermann reaction. This percentage was of interest as being the same as Dr. Shuttleworth[2] had found in regard to the frequency of inherited syphilis in mental deficiency, many years before Wassermann's reaction had been introduced.

Dr. BELLINGHAM SMITH, in reply, said the parents of the patients dealt with had not been treated. The first patient was distinctly improved under anti-syphilitic treatment, and the younger child in the two family cases was also improved. The cases dealt with in the Danish paper were probably asylum

[1] O. Thomsen, H. Boas, B. Hjorta, and W. Leschly, *Hospitalstidende*, 1911, liv, p. 169.

[2] "Mentally Deficient Children," 1st ed., 1895, p. 36.

cases, and of all ages. A point he had hoped to have had answered was, as to how long the Wassermann reaction remained positive after the period of infection. A certain number of cases between the ages of 7 and 40 years would perhaps not give the reaction, owing to the long period which had elapsed after infection. He could find no definite statements on that point. If time played any part in the duration of the reaction, it might negative the work which had been done on old imbeciles.

# Section for the Study of Disease in Children.

May 26, 1911.

Dr. E. CAUTLEY, President of the Section, in the Chair.

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## Discussion on Dr. Milne's Paper, "Measles: Its Treatment and Prevention."[1]

DR. J. D. ROLLESTON said: Whatever may be the ultimate decision as to the value of Dr. Milne's treatment of measles, I think that most of those present will agree that he has done wisely in submitting his method to the criticism of this Section of the Royal Society of Medicine. It is to be hoped that we shall hear this afternoon whether in the opinion of this Section it is justifiable to adopt his treatment, and expose to the infection of what is often a dangerous disease children who have been unprotected by a previous attack. Of special interest will be the remarks made by subsequent speakers who have employed the method, either in scarlet fever or measles. Have their results been as gratifying as those of Dr. Milne, or, on the other hand, inconclusive or definitely unfavourable? Has the application of eucalyptus oil to the skin, or of carbolic oil to the throat, caused any unpleasant symptoms?

It can hardly be denied that Dr. Milne's paper contains many surprising statements which cannot be allowed to pass unchallenged. At the outset he says that "The present agitation for the notification and isolation of measles is altogether unjustifiable and unwarrantable, for the moving of delicate children at such a time can only be attended by the most serious dangers to the little patient. . . . Besides, it greatly increases the patient's danger in both cross-infection and complications."

[1] Adjourned from March 24, *see* pp. 142-154.

A satisfactory answer to the above cannot be given until the statistics of the measles cases admitted to the Metropolitan Asylums Board Hospitals during the recent outbreak have been published, but the medical superintendents of these and other hospitals who are present will doubtless be able to tell us about the mortality, frequency of complications, and cross-infections among the cases of measles that have been under their care.

The dangers associated with the hospitalization of measles have considerably declined within recent years, concurrently with improvement in hospital hygiene; so that the charges against hospitals brought by Dr. Milne must be regarded as no longer justifiable.

Particularly instructive is the case of the Paris hospitals. According to Professor Hutinel, the mortality from measles at the Hospice des Enfants Assistés,[1] which in 1880 was 50 per cent., was hardly over 10 per cent. in 1909. Still more remarkable was the success obtained at the Hôpital Pasteur, where during the quinquennium 1900-05, among 376 cases of measles the mortality was only 2·92 per cent. Dr. Louis Martin,[2] from whose paper I quote, states that secondary infections were very rare at this hospital, where, as is well known, the system of individual isolation of patients is practised. Again, among 39 cases of post-scarlatinal measles treated by Gouget[3] at the Hôpital Claude Bernard, not only did no death occur, but no single case contracted broncho-pneumonia. These unusually favourable results were attributed by Gouget to the early isolation of patients by means of Koplik's spots, and to individual isolation. In a recent personal interval with Dr. Lesage, physician to the Hôpital Hérold, where individual isolation is also practised, I learnt that there is a similar absence of complications among the measles cases.

It is regrettable that so much of Dr. Milne's paper is taken up by an attack on Dr. Goodall, who unfavourably reviewed in the *Medical Annual* for 1909 and 1910 the identical treatment which Dr. Milne had proposed for scarlet fever. Has Dr. Milne forgotten that equally unfavourable opinions were expressed in November, 1909, at the Epidemiological Section, by several speakers, some of whom are present this afternoon?[4] I would also remind him of the trenchant criticism

[1] "Les maladies des enfants," 1909, tome i, p. 398.

[2] *Rev. d'hygiène*, Par., 1906, xxviii, p. 203.

[3] *Bull. et mém. de la Soc. méd. des Hôp. de Par.*, 1909, xxvii, 3me sér., p. 171.

[4] *Proceedings*, 1909, iii (Epidem. Sect.), pp. 67 *et seq.*

of Dr. H. Kerr in the *British Medical Journal.*[1] The tactful silence of the medical Press, the true inwardness of which Dr. Milne does not appreciate, is also significant.

I would venture to suggest that more convincing confirmation of the value of his method is required than is furnished by testimonials from more or less eminent persons, medical and otherwise, whom Dr. Milne has quoted. He would, I think, have been better advised had he explained to us the rationale of his method. As the pre-eruptive period of measles is the most contagious, and the contagion is chiefly spread by discharges from the nose and eyes, it is difficult to understand what useful purpose can be served by inunction of the skin, while the eyes and nose receive no special attention: nor is it clear how two-hourly paintings of the throat with 1 in 10 carbolic oil, itself an antiseptic of very doubtful value, can possibly render the throat innocuous.[2]

Dr. Milne claims, as one of the advantages of his treatment, that the mother is free to attend both patient and her duties, but he has not made it clear who is to carry out the treatment in the houses of the poor. I can hardly believe that he would entrust the skin inunction, much less the throat swabbing, to the mother. Whatever may be its efficacy the treatment must be far from pleasant, and I doubt if many mothers would be sufficiently firm to carry it out.

Another advantage of the treatment, according to Dr. Milne, is that it renders disinfection unnecessary. Under ordinary circumstances, however, as has been pointed out by Buchan[3] in this country, Herman[4] in New York, and Comby[5] in Paris, it is very doubtful if disinfection after measles is necessary, unless the patient has died of broncho-pneumonia or some secondary infection, so that no special merit can accrue to Dr. Milne's method in this respect.

Dr. Milne further states that, during the twenty-five years in which he has employed his treatment, he has only had 234 cases of measles, as contrasted with 612 cases in twelve years reported by Dr. Armstrong at Wellington College. Dr. Armstrong has drawn my attention to a serious inaccuracy here on the part of Dr. Milne; the period of time during which these 612 cases occurred being twenty-five years, or more

[1] *Brit. Med. Journ.*, 1909, i, p. 307.
[2] H. Kerr, *Brit. Med. Journ.*, 1909, i, p. 307.
[3] *Journ. Roy. Inst. Public Health*, 1908, xvi, p. 214.
[4] *Pediatrics*, New York, 1908, xx, p. 284.
[5] "Traité des Maladies de l'Enfance," Par., 1904, tome i, art. Rougéole.

than twice the time given by Dr. Milne. It may well be questioned whether the smaller number of Dr. Milne's cases was not due to an immunity, either natural or acquired, by a previous attack. It is also difficult to understand why, after employing his treatment for measles for so many years, he has only within the last year or so become convinced of its value. His recent cases, the description of which is far from clear, do not appear to me to warrant the conclusions which he draws. Only two years ago Dr. Milne[1] stated that he could not recommend his treatment with the same confidence in measles as in scarlet fever, and it is noteworthy that Mr. J. Sadler Curgenven,[2] whose father, prior to Dr. Milne, advocated the inunction treatment of scarlet fever, wrote that he had tried the inunction treatment of measles in a good many cases without benefit, and had never found it prevent the spread of the disease.

It may be mentioned, in passing, that though the incubation period of measles is usually under sixteen days, a longer period is by no means unknown,[3] so that it is always the practice at the Grove Hospital to keep a ward in quarantine for twenty-one days after the removal of a case of measles from it.

Whatever the final result may have been, Dr. Milne, in the account of his recent experiment, is somewhat premature in regarding as a triumph the absence of any further cases before three weeks had elapsed. As he has given no explanation of the rationale of his treatment, it is difficult to understand what grounds he has for stating that the tendency to complications is greatly diminished by this method, especially when one considers that the frequency of complications in measles, as in other infectious diseases, varies considerably in different epidemics.

I may briefly summarize my remarks as follows :—

(1) Dr. Milne's objections to the hospitalization of measles are no longer applicable to the hospitals of to-day, especially those in which individual isolation is carried out.

(2) Inunction of the skin, which is of very doubtful advantage in scarlet fever, is of still less value in measles, the infection being conveyed chiefly by discharges from the eyes and nose. The painting of the throat is also of doubtful utility.

(3) No explanation is given of the rationale of the treatment, either from a curative or a prophylactic standpoint.

[1] *Brit. Med. Journ.*, 1909, i, p. 184.
[2] *Ibid.*, i, p. 251.
[3] *Vide* Holt, "Diseases of Infants and Children," 1910, 5th ed., p. 978.

Dr. BEZLY THORNE desired first to make a brief retrospect so as to show that the views he held were not based on either cursory observations or hasty generalization. When he entered into general practice in 1871 he was armed with the card of instructions which had been issued by the late Dr. Lankester, then Coroner of Middlesex, whose method consisted mainly in the inunction of the body with carbolized oil. He (Dr. Thorne) lived in a part of London then which afforded singular opportunities for studying the exanthemata and other infectious diseases. He added to the method in the case of scarlet fever swabbing of the throat with carbolic acid. Later on, when eucalyptus oil was introduced as a pharmaceutical agent, he used it, and was surprised at the benign course which scarlet fever ran when so treated. But it had disadvantages: the patients disliked it; in some it caused irritation, and in others rash. He devised the plan of applying an aqueous emulsion of the oil, which he applied with an artist's washbrush or with a sponge, during the acute stage twice a day, and during desquamation once a day. He began to apply it afterwards for measles and varicella. The ablution with the watery emulsion was very agreeable. It lowered the temperature, and encouraged sleep. Possibly the favourable course was partly due to the sponging during the pyrexial period. The application of the eucalyptus oil was more beneficial in scarlet fever than in measles. He determined then to give eucalyptus internally. But in measles, varicella and influenza the eucalyptus oil internally seemed to make no difference. In the case of scarlet fever the acute symptoms subsided in twenty-four to thirty-six hours, and in two or three days more every patient had entered upon a good convalescence, and after that treatment there were no sequelæ of any consequence—merely a small amount of albuminuria in rare cases. He exhibited three of the original charts of such cases, and one which was published in the *Lancet* in May, 1891.

With regard to Dr. Milne's paper, he (Dr. Thorne) came to the meeting to say that he had had experience of measles and scarlet fever for forty years, twenty-five of which were in general practice. The net result was that in no cases had the infection of scarlet fever spread. He was prepared to make allowance for the fact that his patients had been in comfortable circumstances, and that they had had trained nurses and every care. But in no case could any spread after such treatment be traced unless the disease had existed before precautions had been taken. It was very unlikely that the Curgenvens, father and son, Dr. Milne and

himself, unknown to each other and working quite independently, could have obtained such good results on similar lines unless there were much merit in the treatment. His own observations confirmed those of Dr. Milne. And there was nothing surprising in that, because the methodical application of the principles of asepsis and antisepsis had yielded results which were very satisfactory in surgery, and he did not see why similarly good results should not ensue from the methodical and scientific application of what might be termed "atoxia" in the treatment of infectious diseases. He felt that where failure had followed previous experiments there must have been some defect of technique on the part of some of the subordinate agents engaged in the treatment.

Dr. J. BIERNACKI said: During the time Dr. Milne has been pressing on the attention of medical men his methods of preventing the spread of scarlet fever I have had some curious criticisms of his claim. It has been said, for example, that the method is an old one, the suggestion being that it was tried and found wanting; but this is wrong: the old methods and the new are merely alike, not identical. Again, it has been objected that it is not in the nature of scarlet fever to be controlled by such a method. To me, a priori reasoning of this sort seems to be worse than useless; if it were generally adopted, the progress of medicine would be seriously hampered. Nevertheless, there is one fact in regard to criticisms of his method which I would like to put very plainly to Dr. Milne. It is not within his power to establish his claim, nor can it be established by the sporadic evidence in its favour which he quotes so often. There can only be one satisfying test of a result depending on extensive and prolonged observations, and that is an investigation equally thorough by a reliable authority.

No one has a greater admiration than myself for the splendid work Dr. Milne is doing among poor children, and I would be very sorry to seem unfair in the present discussion. Still, one must say this: Dr. Milne's handling of his case constantly lays it open to criticism. Those who read his monograph on the prevention of scarlet fever must have felt this. It is to be regretted that in it, as elsewhere in Dr. Milne's statements, scientific evidence is not alone relied upon, to the exclusion of mere opinion—the off-hand remarks, say, of well-meaning gentlemen who have visited his institution. In saying this, one does not mean to imply that Dr. Milne has done nothing towards establishing his claim,

that he can deprive scarlet fever of its infectivity by simple means. He has published statistics that are striking, and drawn inferences from them that are startling; it is the business of others to confirm his inferences. The infective quality of scarlet fever varies greatly in different places, and often in the same place at different times. And this is the pith of the issue. To prove or disprove Dr. Milne's inferences, a very wide field of experiment would be needful. The conditions would be met if two or three large municipalities were to stop entirely the removal of scarlet fever cases to hospital, were to do away with all the usual precautions in the patients' homes, and were to rely on Dr. Milne's method alone to safeguard the community. One hopes that this test will be carried out; for the question is one of national importance.

As regards the prevention of measles, one must again criticize Dr. Milne's logic. The earlier part of his paper deals at length with the prevention of scarlet fever, as though the efficiency of his method in that disease, if proved, bore on its efficiency in quite another disease. I have tried Dr. Milne's method, as used for scarlet fever, during an outbreak of measles in Plaistow Hospital, and the infection was not controlled. This is, of course, no proof that, with the added precautions he describes, it would not have succeeded. I hope to apply the method properly when a chance offers.

As the preventive treatment of scarlet fever is discussed in Dr. Milne's paper, I may add that it was thoroughly tested at Plaistow Hospital over a period of a year. It was a complete failure. Complications were as severe, and cross-infection and return cases more frequent than under the barrier system. This, again, is no evidence that Dr. Milne's treatment is useless. He has the right to lay down the conditions under which it will succeed, and one of these conditions is that patients must be treated from the outset of the disease—obviously, a condition which cannot be met in a fever hospital. But—and this is characteristic of much that underlies Dr. Milne's case for prevention by his method—no reliable evidence has been put forward to show that the condition is a necessary one. That it is necessary may be fairly classed as an opinion.

Dr. T. R. WHIPHAM remarked that the paper was a very interesting one in connexion with the outbreaks of measles which occurred in

children's hospitals from time to time, and the difficulties in dealing with which were often considerable. The criticisms so far offered had been somewhat general, and had emanated from those connected with the fever hospitals. He wished to offer some detailed criticisms. One or two important points were inadequately dealt with in the paper. The first was the possibility of the transmission of the disease from one patient to another by a third person, such as a nurse. It was possible for a nurse, especially if she happened herself to have contracted measles from an original sufferer from the disease, to communicate it to another patient during the time of the incubation period of her own attack; but was it possible so to saturate a nurse going about her duty in the wards with eucalyptus oil as to prevent the contagion spreading? He assumed that she could not be kept in a continual bath of eucalyptus. Next, he asked as to the period at which Dr. Milne carried out eucalyptus oil inunction and swabbing of the throat with carbolic oil. Was one to consider that every case in a children's hospital which presented a certain amount of temperature and various indefinite symptoms, not diagnosable as measles, was a potential case of the disease and must be treated on the lines advocated? Or should one wait until there was definite evidence of the disease, such as the rash and the coryza, or at all events until Koplik's spots had been found? If one waited for the characteristic features, what was to prevent the spread of the infection during the incubation period? On the other hand, if one was to treat every case of unexplained rise of temperature, every case which did not conform with some other disease, as potential measles, it seemed to him that one would live in a continual atmosphere of eucalyptus. He echoed Dr. Rolleston's request for information as to the rationale of the treatment. And he would ask the same question regarding the internal administration of eucalyptus oil. Moreover, no disinfection of the coryza had been suggested. He doubted whether the cases treated by the advocates of Dr. Milne's method were really better than if they had been treated on general lines.

Dr. MILNE, in reply, expressed his pleasure at having heard the discussion on his paper. In answer to Dr. Rolleston's comment as to the lack of confirmation, he contended that he had given very ample opportunity to his medical brethren to confirm his work. He wrote to each of the isolation hospitals of London, with one exception, inviting

the doctors to come and see his cases. He also wrote to the same effect to the Public Schools Association, and gave an invitation to the meeting of the British Medical Association in July, also at Oxford in October, besides others. In regard to the rationale, it was now found by medical experts, on overhauling the belief of former years, that medicines acted in a way different to what was formerly thought, so he had not attempted to explain the action. With regard to the possibility of the eucalyptus being absorbed, if the urine of the cases was collected in bottles and kept for some time, there was a decided aroma of eucalyptus oil. As he pointed out in his book, he believed that the complications came through secondary infections, and when the throat was treated early those never came; neither in throat, nose, ears, nor kidneys. The treatment had been carried out in poor homes, and when a mother was shown how to swab the throat and anoint the body, he never found she failed to carry it out. Dr. Rolleston dwelt on individual isolation in hospitals, but his (Dr. Milne's) point was that isolation was not necessary. That being so, why was it that all over the kindgom there was so much expense in connexion with it? He thanked Dr. Bezly Thorne, who was in agreement with him. With regard to irritation being produced by eucalyptus oil, they had only one case which could not bear it—namely, one of psoriasis. He heartily agreed with all that had been said with regard to the experiences in scarlet fever hospitals. Many isolation hospital superintendents had written to him from different parts of the country, and, as he had told them, it was clear from Dr. Turner and Dr. Biernacki's experience, that the treatment could not be carried out in these. In a paper he read at Oxford he asked how it came about that the method had failed in isolation hospitals in two ways: First, because the cases were not treated sufficiently early; and secondly, why was it that even when a case had been so treated in an isolation hospital, return cases were as frequent as formerly? The only explanation he could suggest was that the hospital was so full of infection that the patients carried the germ in their systems, as they did that of diphtheria, and although immune themselves, conveyed it to others. He had notes of a case which had been kept in an isolation hospital for three months on account of ear trouble. Within a few days of his return a second child was removed, and kept for the same time. A few days after his return a third child was removed, and kept an equal time. In isolation hospitals he believed some 2,500 sq. ft. of space were allowed per patient, but in the institution under his care it was more like 450 ft., so that the patients were close

to one another. The comparison with influenza did not follow at all—it was not used continuously. Cardinal Newman, in his "Apologia," spoke of the attempt to "poison the wells." There seemed to be a little of that in one speaker's expressions, especially when he said that confirmation of the work must be left to others. He was confirmed in his view as to the non-necessity of sending the children so affected to isolation hospitals. In a paper which he proposed to submit in the fall of the year he would bring forward even more startling evidence than he had yet mentioned. It would consist of facts from hundreds of testimonies from various parts of the world, and fully confirming all that he had advanced. With regard to the nature of the evidence, did Dr. Rolleston or Dr. Biernacki contend that the testimony advanced by matrons in charge of an institution was not admissible? He would be glad to know how he could do more than he had done to submit his treatment to the fullest investigation. He had not advised the taking up of the method universally, but at the first meeting he did press the necessity of taking up and trying the method in different parts of the kingdom, and if found deficient it could go to the wall. But medical officers of health could not take it up. To do so rendered them liable to legal proceedings.

In a record of thirty years over 12,000 children passed through Dr. Barnardo's Village Homes, and there were 254 cases of scarlet fever; 95 occurred between December 16, 1904, and April 22, 1905, and that number was described in his book as due to pen and pencil infection.

Dr. Milne further said: The following series of cases have occurred in the institutions under my care since the paper was read, and will be of the deepest interest. In one of our London Homes for Girls, with fifty-three in residence, a case of measles occurred on March 20, 1911, aged 7 years:—

| | | | |
|---|---|---|---|
| Four cases on March 26 | ... | Aged 7, 7, 5 and 5 years | ... Sixth day. |
| Two ,, ,, 28 | ... | ,, 16 and 12 ,, | ... Eighth day. |
| Three ,, April 2 | ... | ,, 12, 7 and 5 ,, | ... Thirteenth day. |
| One case on ,, 3 | ... | ,, 6 ,, | ... Fourteenth ,, |

Then the trouble ceased, although the children were sleeping in the same dormitory. Another case occurred after their return to school. Of these children, our records show that eight had previously had attacks of measles, two of whom are in the above number of cases.

The ages of all in the Home were: Two of 4 years, five of 5 years, seven of 6 years, five of 7 years, three of 8 years, three of 9 years, and the others were 10 years and over. One case occurred in a Home with sixty others, and, although nursed on the same floor as bedrooms and workrooms, there was no infection.

In the receiving house at the Village Home, on March 3, 1911, a typical case of measles occurred. In the ward was another baby. In the adjoining wards, and attended by the same nurses, were four babies under 1 year, besides five 1 year old, four 2 years of age, nine 3 years, and two 4 years. On the day the disease appeared fifty-three children were in residence; thirty passed out during the fortnight, and thirty-three were admitted. Thus 116 were in the house during the fortnight, yet there was no spread of the infection among these children, nor any complication in the patient. The following note from the matron of this receiving house deserves the fullest consideration. Before taking up her present position she had much experience of a similar nature among children. During the eight years she has been in her present position over 5,500 children have passed through, of all sorts and conditions.

"It has been my privilege to learn from practical experience that it is unnecessary to isolate patients suffering from measles or from scarlet fever. When suspicious symptoms are observed, we promptly carry out Dr. Milne's method of treatment, *re* eucalyptus and carbolic oil. We have nursed such little patients among a number of babies and young children, always with the happy result—'no infection; no complications.' We have also noted again and again that the eucalyptus so largely modifies the diseases that there is less suffering and a more speedy recovery. Many of the children committed to our care are very frail. As one recalls the anxiety and fear of an epidemic experienced in the past when a case of measles or scarlet fever appeared, it is with deep gratitude that we express that we have proved that such fears are no longer necessary, as, since using eucalyptus and carbolic oil according to Dr. Milne's instructions, such an epidemic has been unknown at our receiving home."

On March 13 at the hospital of our Homes, Stepney Causeway, a baby, 15 months old, developed measles. She was in the babies' ward with nine others. There were characteristic symptoms—rash and temperature. On March 17 I removed a large calculus from the bladder of a little boy of some 4 years of age by the suprapubic method. On the same day I operated on another and straightened his knee to get ankylosis, and also divided the tendo Achillis. To-day

is the thirteenth day from the date of attack, therefore three days yet remain wherein first infection may develop—i.e., until the sixteenth day—which, however, I do not expect, as the baby was treated early. Should any of you desire to see these children, it will afford us the greatest pleasure for you to visit the hospital and inspect them, on the last three days for the appearance of infection.

Dr. BEZLY THORNE desired to answer the question put to him as to the rationale of the eucalyptus oil in scarlet fever. He believed it acted by destroying the micro-organism, particularly when the oil was taken internally. The difference between the course of his cases before it was given internally, and when it was given was very striking. He could no more explain how eucalyptus acted in scarlet fever than he could say how quinine acted in malaria. Perhaps the action was much the same.

## Cerebral Sclerosis and Idiocy.

By E. CAUTLEY, M.D.

FEMALE, aged 2 years and 4 months, is the sixth of seven children. One died in infancy, and the mother has had two miscarriages. There is no history of syphilis, or evidence thereof in the child. According to the mother the baby was normal up to 9 months of age, when she developed fits of opisthotonus and screaming. Further inquiry elicited that the child was backward and had never been able to sit up, walk, or talk. She is small, wasted, and constantly in a position of head retraction and opisthotonus, with some general rigidity and spasmodic movements of the limbs. The knee-jerks are exaggerated, and Kernig's sign is present. Apparently the child is blind, but the pupils are equal and react to light, and there are no fundus changes. The head is small, $16\frac{7}{8}$ in. in circumference. The diagnosis rests between a sclerosis of postnatal origin, perhaps secondary to encephalitis, and cerebral palsy of the type known as cerebral spastic diplegia. Apparently the prognosis is hopeless.

DISCUSSION.

Dr. SUTHERLAND considered that Dr. Cautley had summed up all there was to be said about the child; no one could produce evidence to say which of the two conditions was the primary cause. He did not suppose Dr. Cautley would be in a hurry to do craniotomy, which had been discontinued in London for some years in the treatment of such cases.

Dr. CAUTLEY, in reply, said all that could be said in favour of craniotomy was that the child was a hopeless idiot, and was likely to remain so.

## Pyloric Hypertrophy and Spasm.

By E. CAUTLEY, M.D.

MALE, aged 10 weeks; second child. Weight 6 lb. at birth. Fed on Allenbury No. 1 Food, and gained 1 lb. in a week. Vomiting then began and continued in spite of varied diet and treatment until admission to the Belgrave Hospital ten days ago. During the previous fortnight the vomiting had become more severe and projectile in character, and the bowels had only acted twice without adventitious aid. On admission the child was fed on whey, and gained 6 oz. in four days, reaching a weight of 7 lb. 7 oz. Since then he has lost 1 oz. Examination shows typical peristalsis of the stomach extending to the duodenum. The pylorus is palpable, but not much enlarged. That it is sufficiently patent to permit the passage of food is shown by the fact that the child retains feeds of whey 3 oz., cream ½ dr., lactose ½ dr., every three hours, and has only vomited twice in the last week. The stools are normal. The peristalsis is increasing in visibility, but at present there is no dilatation of the stomach, and it is justifiable to wait longer before advocating operation.

DISCUSSION.

Dr. G. A. SUTHERLAND said finality had not yet been reached with regard to the treatment of this condition, and he did not think it was for members to pronounce an opinion as to what the line of treatment should be in this case; it would depend largely on the results of observation. The child was

digesting its food and was passing it on to the bowel, and the bowel was acting well; but it was evident that the child was ill-nourished. He did not consider that the 21 oz. of whey per day was sufficient food, and thought that without paying too much regard to the peristalsis, the amount of nourishment should be increased, and the stomach washed out every second day to see if there was any residue left. He did not think the child was now thriving, and if it could not absorb more nourishment, some other treatment might be necessary.

Mr. LOCKHART MUMMERY considered that the child would eventually be operated upon, as that would be necessary. Otherwise he did not think the child would be able to get enough nourishment. If it lost 6 oz. in weight, he would take that as an indication for operation.

Dr. CAUTLEY, in reply, said he would adopt the course recommended by Dr. Sutherland, and endeavour to get stronger food retained. He agreed that 21 oz. of whey, and a little fat and lactose were not sufficient for a child of that age. He feared to bring on vomiting. The peristalsis had been much more marked since the cream was added.

## Case of severe Tuberculous Peritonitis in a Girl cured by Laparotomy.

By P. LOCKHART MUMMERY, F.R.C.S.

THE child came into the hospital with an enormously distended abdomen containing much fluid, and with dilated veins showing over the surface. The child was seriously emaciated and anæmic. After a short residence in one of the medical wards, during which time there was no improvement in the child's condition, and a fatal issue appearing probable, it was decided to perform laparotomy in the hope of arresting the condition. This was performed in April, and on opening the abdomen the whole of the peritoneum was found to be covered with tubercles, so that there was practically no normal peritoneum to be seen. The visceral as well as the parietal peritoneum were involved. The abdomen was eviscerated, the intestines were then returned and the abdomen closed; the whole operation taking about ten minutes. As the result of the operation the child has got quite well, and there is now no evidence of tuberculous peritonitis.

## DISCUSSION.

Dr. LANGMEAD thought the knowledge of the immunizing power of the blood and of the presence in it of opsonins and other anti-bacterial substances would give the readiest explanation of the way in which the operation acted. Removal of the used-up fluid in the abdominal cavity would lower the intra-abdominal tension and bring a fresh supply of immunizing fluid to the abdominal contents, a better circulation of blood, and a hastening of recovery. That was why in tuberculous peritonitis the cases in which there was much abdominal effusion with tension did best. Where there were many adhesions one did not open the peritoneal cavity at all; the so-called "opening the abdominal cavity" in such cases was merely an expression, and had no counterpart in fact.

The PRESIDENT (Dr. E. Cautley) said they must all congratulate Mr. Mummery on the child getting well. He thought the result was not due so much to the abdomen having been opened as to the evacuation of fluid. Several years ago a discussion was held before the Society for the Study of Disease in Children,[1] on tuberculous peritonitis, and the operative treatment was severely criticized, on the grounds that it was only where there were large effusions of fluid, or where the effusion was purulent, that there was benefit from it. In other words, the benefit from opening the abdomen was due to the evacuation of fluid, and had nothing to do with the admission of air into the abdomen. But the operative treatment proved that tuberculous peritonitis was a curable disease; in fact, one of the most curable forms of tuberculosis, provided the patients were put under proper conditions. Even before operation was introduced, patients recovered, but the prognosis was regarded as very bad. In many children with large abdomens it was almost impossible to decide whether they were tuberculous or not. He did not think it had been proved that cases recovered in consequence of operation. Incision was more justifiable than the withdrawal of fluid by means of the trocar and cannula. Adhesions were so often present that the insertion of a trocar was not always safe. Beyond that, he did not think the surgeon could claim a great deal.

Mr. MUMMERY, in reply, said he agreed that the cases which the operation did good were those in which one could open the abdominal cavity. In the dry cases it was impossible to open the abdominal cavity, as it had ceased to exist. If it were true that the benefit was simply due to the withdrawal of the fluid, the same benefit should accrue from the use of the trocar and cannula. He had had cases in which the latter course had been followed, but without benefit, and which had got well after the abdomen had been

[1] *Rep. Soc. Study Dis. Children*, 1903, iii, p. 54 *et seq.*

opened. At one time he thought that the cases got well because the incision gave rest to the abdominal peritoneum. If one made an incision anywhere in the abdomen, one of the effects during the following ten days was to stop abdominal respiration, and the abdominal wall remained as nearly stationary as the patient could keep it. But if that were the reason, an equally good result should follow strapping of the abdomen. He had tried that, but it was useless. He was not satisfied that Dr. Langmead's suggestion was correct, but it could be proved by taking almost similar cases and treating them first by removing the fluid by the trocar, and if that failed, by operation. If it were simply a question of relieving pressure, aspiration of the fluid should have the same effect as did laparotomy; but this was not the case.

Mr. LOCKHART MUMMERY showed a case of Fatty Tumour in the Abdominal Wall.

Mr. SYDNEY STEPHENSON showed a case of Night Blindness with peculiar Conjunctival Changes.

# Section for the Study of Disease in Children.

July 8, 1911.[1]

Dr. E. CAUTLEY, President of the Section, in the Chair.

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## Case of Cretinism.

By E. J. CROSS, M.D.

E. J., BORN May 19, 1895. Brought under observation in March, 1910: then said to be suffering from kidney disease. At this time the eyelids were very puffy and swollen, the skin dry and scaly, and the hair thin. There was great muscular weakness and mental deficiency. Height, 41·5 in.

June, 1911: Height, 48 in. The boy is much brighter; takes an interest in life.

Treatment: Thyroid extract, 1½ gr. at bedtime; increasing to 3 gr. daily.

## Case of Cretinism.

By J. ALDREN WRIGHT, M.D.

P. S., AGED 15 years. At birth apparently normal. Did not walk until 3½ years old. When aged 7 years his mother noticed that he was stunted in growth.

Condition when first seen, March, 1910, aged 14 years: Height, 30 in.; weight, 31 lb.; intelligence appears absent; rarely moves; can neither walk nor talk. Skin dry and wrinkled; hair scanty. Large supra-clavicular and anterior axillary pads. Thyroid not discernible. Temperature, 97·6° F.

Was given thyroideum siccum. Since then there has been a marked and continued improvement in intelligence and appearance. Present height, 39 in.; weight, 35 lb.

[1] Provincial Meeting held at Addenbrooke's Hospital, Cambridge.

## Congenital Heart Disease (Pulmonary Stenosis); Cerebral Hemiplegia.

By J. ALDREN WRIGHT, M.D.

S. D., AGED 7 years. Nothing wrong noticed until 18 months old, when, having previously walked well, "his left leg began to give way," causing him to fall at times. At this time fits also began to occur.

The child first came under my observation when he was 2 years and 11 months old. He was having twelve fits daily, and could neither sit up nor stand. Intelligence considerably impaired. Very passionate. Both knee-jerks were exaggerated. Plantar reflexes extensor. No ankle-clonus. Left leg smaller than right. Systolic murmur heard at apex, but louder at pulmonary area. Pulmonary stenosis.

Present condition: Fairly well developed boy; left side smaller than right. Intelligence and temperament improved. Knee-jerks exaggerated. Plantar reflexes flexor. Fits now occur only during sleep—day or night; and, recently, only once daily.

## Cerebellar Ataxia.

By J. ALDREN WRIGHT, M.D.

R. D., AGED 14 years. When 4½ years old she somewhat suddenly lost the use of her legs, then of arms and speech. She had difficulty in swallowing. No control of her sphincters. No knee-jerks. Plantar reflexes flexor. Was an in-patient in 1902 at Addenbrooke's Hospital under Dr. Humphry, at Great Ormond Street Hospital under Dr. Batten, and at the West End Hospital. After a time improvement set in; first beginning to crawl, then to walk, recovering control of her sphincters, &c.

Present condition: Mental condition still impaired; in infant class at school. Talks slowly, but fairly distinctly. Sallow and expressionless countenance. No fits. Temperament improved; screams less than formerly. No nystagmus. More sensitive to touch and alterations of temperature. Walks, but with reeling gait and feet apart. Most unsteady in starting to walk. Knee-jerks absent. Plantar reflexes flexor. Abdominal active. Some inco-ordination of hands.

## Child with a Peculiar Gait (? Functional Ataxia).

By J. ALDREN WRIGHT, M.D.

GIRL, aged 6 years. When bringing the left foot forward in walking she lurches over to that side as if about to fall.

DISCUSSION.

Dr. ALDREN WRIGHT remarked that when the mother first brought the child she said that the child had tremors of the right hand and arm, and that she did not walk properly. Careful examination did not result in any organic lesion being found; and it was noticed that when the child's attention was occupied the tremors ceased. The gait did not indicate any kind of organic nervous disease with which he was acquainted. Therefore his conclusion was that it was a hysterical or functional trouble.

Dr. LEONARD GUTHRIE expressed his agreement with Dr. Wright's view of the case; the curious histrionic manner in which the child skated and slid and came down without hurting herself, and the absence of organic disease, were conclusive. With regard to the other case, one of cerebellar ataxia, the question was whether it was an acquired progressive case, or whether it dated from an attack of cerebellar encephalitis which the child seemed to have had when aged 4½ years. As the condition occurred suddenly, probably encephalitis was the cause. The improvement which was now ensuing would, he thought, be maintained, and recovery occur.

## Case of Congenital Heart Disease (? Patent Ductus Arteriosus).

By G. S. HAYNES, M.D.

(For E. LLOYD JONES, M.D.)

THE patient was a girl with a double basic murmur, and some enlargement of the right side of the heart. There seemed to have been but little effect on her growth. She was not cyanosed, and was mentally active.

## Case of Congenital Heart Disease (Pulmonary Stenosis).

By G. S. HAYNES, M.D.

THERE was a loud single murmur, systolic in time, over the pulmonary area. The patient had attacks of lividity. Fingers clubbed. Considerable liability to bronchitis.

DISCUSSION.

Dr. HAYNES said that he did not regard the prognosis of his own case as so good as that of Dr. Lloyd Jones's case, but so far the child's health had been fairly good, and he was able to attend school, and play with other children.

Dr. H. D. ROLLESTON said it would be interesting to hear if Dr. Wright considered that there was any relation—and if so, what?—between the hemiplegia and congenital heart disease in his case. The two conditions might of course be independent, but possibly a clot, formed on the right side of the heart, had passed through the foramen ovale into the left side and so been carried to the brain; this was "paradoxical" or "crossed" embolism.

Dr. WRIGHT replied that he was not able to clear up the point raised by Dr. Rolleston, and he would be glad if anyone could show there was any connexion between the two.

## Case of Mutism.

By G. S. HAYNES, M.D.

THE patient was a small boy, who was said to be unable to speak properly owing to the small size of the tongue. He was an imbecile. His tongue only reached his lower incisors, and could not be protruded. It seemed there was some paralysis of the muscles. He was not deaf, and in many ways he was fairly intelligent. He could only make noises somewhat resembling vowels, and could not articulate.

## Infantile Spastic Paraplegia.

By G. S. HAYNES, M.D.

(For CHARLES SEARLE, M.B.)

A BOY, aged 2 years and 7 months. Family history: Father—only child; when aged 3½ years had a sudden paralysis of the right arm, left leg, and right side of face; came on after a hot day in September, with violent nose-bleeding suddenly in the night; had difficulty in swallowing and could not talk properly; after fifteen months gradually power returned, except in the face. Mother—healthy. (1) Brother—perfectly healthy child at birth; when aged 1 year and 8 months had a fall on the back of his head, and since then was not able to walk or talk; deficient power in left arm; knee-jerks exaggerated; extensor response; loss of power in neck. Was admitted to Great Ormond Street Hospital for

progressive upper neuron degeneration of unknown causation (? injury), was treated with small doses of potassium iodide; had difficulty in swallowing; became worse, and finally totally paralysed; died when aged 2 years and 7 months. (2) Brother—died of measles at the age of 16 months. (3) Sister—died of convulsions at the age of 9 weeks. One brother and one sister alive and well.

History of case: Perfectly healthy and intelligent child until aged 8 months. One day the child had a fit which lasted an hour, during which there was forcible rotation of the head; this was followed by a paralysis of both arms, legs, and back, the condition of the legs being worse than the arms; the child has always had complete control of bladder and rectum; has been an out-patient at St. George's Hospital and Addenbrooke's Hospital; during August, 1910, December, 1910, and March, 1911, the child has been treated for severe attacks of great difficulty in swallowing, and a high temperature; apparent improvement under potassium iodide; the child has "screaming fits" which are getting more frequent, clenches his teeth, goes rigid, and passes water after the fit; limbs rigid and spastic, legs more than arms, both extended, fingers tightly clenched; very constipated. Nervous system —exaggerated knee-jerks, ankle-clonus; Babinski's sign present; marked spasticity of legs, arms not so marked; loss of power of back muscles, cannot sit up; no opportunity of testing electrical reactions yet; at times great difficulty in swallowing; cannot talk, but takes notice of everything going on, recognizing people with whom he comes in contact; intelligence improving; sight good.

## Case of Congenital Nævoid Condition of the Left Thigh.

By W. H. Bowen, M.S.

A boy, aged 12 years, perfectly healthy and leading an ordinary life. Two other children, a boy and girl; both strong children. Over the left buttock and outer side of thigh, irregularly arranged, is a surface port-wine-like stain, but rather lighter than usually seen. Over the buttock there is nothing more, but over the thigh the condition is associated with plexiform subcutaneous veins. These are clearly seen on pressing lightly with a piece of glass. Quite superficially at intervals over this affected part of the thigh are small projecting areas, not much more than a pin's head, appearing to have a dark base, but with a whitish central top. They have the appearance of scabs with a calcareous apex, but are

always present, never changing in appearance, as far as is known. The left leg is considerably larger in girth than the right, the measurements round the limb at the thickness of the calf being 13 in. and 12 in. respectively, and just above the ankle $7\frac{7}{8}$ in. and $7\frac{5}{8}$ in. Save for a small patch of cutaneous staining just below the knee, there are no visible external signs of the leg or foot being affected in the same way as the thigh. The limbs are equal in length.

## DISCUSSION.

Dr. G. PERNET criticized the use of the term "nævoid." He had no doubt whatever the condition was a nævus, therefore, why not call it so? It was desirable to get rid of such terms as "nævoid," "lupoid," "syphiloid," &c., in medical nomenclature. A condition was either nævus, or it was not. With regard to the projecting lesions which were present, he had no doubt either that they were an inchoate form of ichthyosis linearis lateralis. In some cases there was a line of ichthyosis running down the thigh in the same position as the present islets. Therefore in this case there was, in addition to the nævus, an attempt at linear ichthyosis. The present case was a little unusual, and he was glad Mr. Bowen had shown the case. The increase in girth of the affected limb was also a point of interest.

Mr. KELLOCK expressed his disagreement with what Dr. Pernet said, and his agreement with Mr. Bowen's nomenclature. He did not regard the condition as a nævus, and thought the term "nævoid" was more applicable. The difference between what was seen on the boy's thigh and what one found in what was generally termed nævus, was very great. A nævus had a definite line of demarcation, but this patient's lesion had not. A nævus was a tumour, but here there was nothing but an unnatural dilatation of the cutaneous and deep vessels. Again, the patient was a boy of 12 years, and ordinary nævus in a boy was rare; nævus rarely persisted to that age. The condition was interesting because it was what one occasionally saw associated with enlargement of the whole limb—unilateral giantism. It showed, too, the close connexion between those congenital conditions and varicose veins. The enlargement of limb was due to dilatation of the subcutaneous and deep veins. He did not think anything very radical in the way of treatment advisable in this case.

Dr. PERNET, referring to his criticism, said he was aware that in England the term "nævus" was employed in a somewhat limited sense, but he was speaking from the international dermatological standpoint. The present condition was a congenital vascular growth, and therefore came under the heading of nævus.

Mr. CLEMENT LUCAS said he did not agree with Mr. Kellock's view that the case was inoperable and should be left alone. He would recommend that a large area of the swelling should be excised, following it down in an ellipse, so as to stop the large varicose veins in the leg. He had operated upon

patients with very large nævi, and his experience did not accord with the idea that they were uncommon in children. Nævi were not necessarily circumscribed, they might be diffuse. He asked whether this case was at all akin to von Recklinghausen's disease, and whether excision would not reveal that the nerves were enlarged. A case which was discarded as inoperable years ago was alluded to by a distinguished skin surgeon at the Clinical Society, and he (Mr. Lucas) suggested operation. That woman had a large vascular pigmentary condition occupying the whole of one thigh and buttock, with a varicose condition extending to the ankle, and he excised it piece by piece, making an ellipse from the knee to the ankle on two occasions, and gradually removing the hypertrophied buttock. He saw the patient recently and she was very much benefited by these perations which he performed ten or twelve years ago. No fear need be felt about operating on the condition in the present patient. It was true that a nævus bled freely when cut through, but with so many means of checking hæmorrhage, that need be no objection to operating.

## Case of Glandular Fever.

By W. H. Bowen M.S.

A TEMPERATURE CHART showing fluctuations in temperature in a case of enlargement of lymphatic glands in neck following measles, and shown as the most pronounced example of this type of "glandular fever," of which several cases were seen. The main points of the cases were that they followed attacks of measles at varying intervals, they started as a cervical adenitis and peri-adenitis with variable fever, that the constitutional conditions were never severe, and that complete recovery occurred without any suppuration in any case. It seems probable that the measles prepared the soil and that a slight tonsillar inflammation led to the secondary glandular change. The chart shows three weeks of continuous fever, the temperature reaching 102° F. to 103° F. at the end of the second week.

## Case of Post-diphtheritic Paralysis and Hemiplegia.

By Laurence Humphry, M.D.

H. W., MALE, aged 11. History: December 12, 1909—an attack of diphtheria; December 24—headache and vomiting; December 27—paralysis of soft palate, weakness of legs and loss of knee-jerks; December 29—left hemiplegia. February 8, 1910: Condition when

first seen—left hemiplegia, face, tongue, arm, and leg; external strabismus and defective vision right eye; knee-jerks both absent, plantar reflex, flexor in right, extensor in left. May 18: Muscular power returning; left arm, contraction of fingers and wrist; left leg, some rigidity; exaggerated knee-jerks on left side, right normal; right pupil does not react to light, atrophy of right disk. July, 1911: Patient can walk; some spasticity of left arm and leg, and reflexes increased with Babinski on left side; face normal, external strabismus right eye, defective vision and optic atrophy.

The case is interesting on account of almost simultaneous development of post-diphtheritic paralysis and of a vascular lesion on the right side of the brain, probably a clot obstructing the Sylvian artery and the ophthalmic branch.

Dr. LEONARD GUTHRIE said he was sorry Dr. Humphry was not present with particulars, but he gathered that two years ago the boy had an ordinary attack of diphtheria, and twelve days after that he showed signs of diphtheritic paralysis—i.e., palate paralysed, squint, and loss of knee-jerks. Shortly after that he suddenly became hemiplegic on the left side. For a considerable time the knee-jerks remained absent on both sides, but that on the left side gradually returned. He lost vision in the right eye. The present condition was mostly one of spasticity of the left arm, without complete paralysis, and his leg now seems to be fairly useful. There was atrophy of the right optic disk. The paralysis of the soft palate had cleared up, but the loss of vision on the right side and the hemiplegia on the left had not cleared up. He thought there was no doubt that the boy had embolism of the Sylvian artery, and of a branch of the ophthalmic artery occluding it. That would account for the hemiplegia on the left side and the atrophy of the disk which still remained. Dr. F. E. Batten and he had reported a fair number of these cases, in which hemiplegia of one side was associated with optic atrophy on the other—i.e., optic atrophy on the side of the lesion. In one case a boy, aged 7 years, was run over and had some ribs fractured, and shortly afterwards developed pneumothorax with displacement of the heart to the right. A week later he suddenly became aphasic, blind in the left eye, and hemiplegic on the right side. He recovered partially from the hemiplegia, but the left eye remained blind owing to complete atrophy of the disk. Another case was that of a young woman who, nine days after confinement, had a series of fits and became hemiplegic on left side. Three months later she discovered that she was blind in the right eye, and on examination the disk was found to be atrophied. He remembered a third case, that of a boy, aged 12 years, who fractured his left femur. After union of the fracture he suffered for a fortnight from pain at its site, and had an irregular temperature. Two weeks later his right arm became weak, ataxic, and tremulous, he dragged his right leg in walking, vision failed in his left eye, in which signs of retrobulbar neuritis were detected, All the symptoms

disappeared in six months, except that slight pallor of the left disk remained. Here the occlusion of the left Sylvian and ophthalmic arteries appears to have been less extensive than in the other cases. In one case (Dr. Batten's) an opportunity of verifying the diagnosis was afforded. The symptoms in an anæmic girl, aged 25 years, were: sudden onset of right hemiplegia, sudden loss of vision in the left eye, recurrent fits of Jacksonian epilepsy, increasing coma, and death in twenty months. At the autopsy, occlusion of the left ophthalmic and Sylvian arteries was found, with softening of the area supplied by the latter vessel, atrophy of the left optic nerve, and secondary degeneration of the spinal cord and optic chiasma.

## Case of (?) Chronic Encephalitis.

By A. H. MILLER, M.D.

H. R., AGED 7 years. Rickets in infancy; osteoclasia of both legs; recovery. June, 1909: Pleurisy and bronchitis, followed by idiocy and spasticity of the limbs.

## Case of Hydrocephalus and Buphthalmos.

By J. C. W. GRAHAM, M.D.

D. P. M., MALE, aged 3 years. Right eye buphthalmic at birth and removed. Left eye gradually became buphthalmic and was removed in March, 1910. The head measured 20 in. in circumference in December, 1909, and now measures 22 in.

## Case of Congenital Cataract.

By J. C. W. GRAHAM, M.D.

F. S., FEMALE, aged 9 years. Congenital central deposit, posterior surface of each lens. Vision $\frac{6}{18}$ in each eye.

Dr. GRAHAM said there was an appearance of grains of black pepper scattered over the central part of the posterior surface of each lens. It was a rare form of congenital cataract. There was no need for operation, and it was hoped glasses would somewhat improve the vision—the retinoscopy showed a low degree of mixed astigmatism. There were no fundus changes.

## Case of Hypermetropic Astigmatism with Macular Changes.

By J. C. W. GRAHAM, M.D.

L. M. P., FEMALE, aged 8 years. Vision in each eye $\frac{6}{36}$ in April, 1910; reduced to board only in March, 1911. Slightly improved by glasses.

Dr. GRAHAM said the patient had been attending the Out-patient Department at Addenbrooke's Hospital for eighteen months, and then the vision in each eye was, when she first came, $\frac{6}{36}$, and remained so until three months ago. But the vision, particularly in the left eye, had been decreasing, and this year there had appeared white patches around the macula. The amount of hypermetropia in each eye was from eight to ten diopters. The left eye was not improved by glasses, but the right was improved by correction to $\frac{6}{24}$. The child had a brownish pallor, and he suggested that the condition in each eye was connected with a general state. The suggestion had been made that it might be syphilitic, but the appearances were not typical of that; there were no peripheral changes such as seen in choroiditis in malignant myopia associated with syphilis. The exact diagnosis might be aided by an examination of the blood, and the performance of a Wassermann reaction. The urine had been found to be normal.

## Case for Diagnosis. Family Nervous Disease.

By C. A. BASKER, M.B.

THE patient, who is aged 13 years, has been lame for five years. One of his sisters was admitted, last May, into Addenbrooke's Hospital, under Dr. Humphry, for paralysis. Several members of the family have had some form of nervous disease, and two have died from it. His father is 51 years old. For six or seven years he has had some tremor of his arms. His mother is healthy. His grandparents and great-grandparents had no form of paralysis. The history of his sisters and brothers is as follows:—

(1) Female, died nine years ago at the age of 20 years. She never walked. For the last year of her life she had tremor of her head; her hands shook when she fed, and she was unable to speak.

(2) Male, aged 25 years; has been lame for nine years. He has talipes equinus and pes cavus of the left foot, and extensor plantar

reflex on the left side. Some tremor of the hands is present, but no inco-ordination. Nystagmus is not present.

(3) Female, died at the age of 22 years, four months ago. After she was 8 years old she used to " fall about " when walking. Gradually she became paralysed. Her speech failed some months before death.

(4) Female, aged 20 (under Dr. Humphry, May, 1911). Started to limp when 9 years old. For four years she has been unable to walk. On examination there is slight weakness of the right side of the face and the eyelids droop. The head is turned to the right and the chin is thrust forward. Kyphosis of the upper dorsal region is present. There is no ocular paralysis, no nystagmus, and the disks are normal. There is a coarse tremor of the left hand. The skin of the lower third of the legs is cold and blue. The patient has dropped feet and there is some spasticity of the legs. Plantar reflex is present and seems to be extensor.

(5) Female, aged 19 years. Healthy.

(6) Male, aged 13 (the patient shown). Limps with the left foot and turns the left toes in. He has Romberg's sign. There is no nystagmus. The upper extremities seem to be normal. Knee-jerks are active, especially on the left side, and on this side plantar reflex is probably extensor.

I have given no name to the disease from which this family is suffering, but suggest that it is a form of spino-cerebellar ataxia.

Dr. H. D. ROLLESTON agreed with the exhibitor that the case belonged to the group of cerebellar ataxias, of which there were several varieties; probably it was of the spino-cerebellar type. Besides the common element of ataxia these conditions showed a strong hereditary element, which was particularly prominent in the present case.

## A Heart showing an Infective Polypoid Thrombus in the Pulmonary Artery and extending into the Right Ventricle, mistaken for Patent Ductus Arteriosus.

By T. R. WHIPHAM, M.D.

THE patient was a girl, aged 11½ years, who had never had any definite illness, though she had always been delicate, and was said to have been short of breath and cyanotic from time to time. There was no history of rheumatism or chorea. She was first seen in November, 1910, when she complained of debility and shortness of breath. She

was an undersized child and anæmic, though otherwise healthy in appearance, and did not show any clubbing of the fingers. The heart was enlarged, the apex being well outside the nipple line and the dullness increased to the left. The impulse was wavy in the fifth and sixth interspaces, the apex being apparently situated in the fifth. In this region a blowing systolic murmur was audible following a loud first sound, and succeeded by a normal second sound. Over a localized area in the pulmonary region a well-marked thrill could be felt, and on auscultation a loud, churning rumble was heard, rising and falling in cadence and extending throughout both systole and diastole, so as to obliterate the normal cardiac sounds. Neither the liver nor the spleen was enlarged. The murmur was typically that described by Dr. G. A. Gibson as diagnostic of patent ductus arteriosus, and such the case was supposed to be. The patient was shown at the meeting of the Section held on November 25,[1] where the diagnosis was generally confirmed.

Under general treatment the girl went on fairly well until the end of April, when the cardiac symptoms rapidly became more marked. On May 10 she came up to hospital in a collapsed state and was admitted. There was great cardiac distress, the patient being very pale and short of breath, and sweating profusely. At this time it was noted that the nails were slightly curved, and that there was some œdema of the ankles. The tongue was moist, but slightly furred. The abdomen was distended, but presented no evidence of free fluid, the enlargement being due to an increase in size of the spleen, which extended to the level of the umbilicus, and to enlargement of the liver, the edge of which could be felt midway between the umbilicus and the costal margin. The heart's apex was in the sixth intercostal space, 1½ in. outside the nipple line, and the impulse was of a heaving character. On auscultation, the same murmurs were present as when the patient was first seen. The pulse was regular, though rapid, 140 per minute, and the temperature was 100·2° F. The urine was of low specific gravity (1009), acid, and contained a trace of albumin.

It was obvious that the child was very ill, and on the following day she had a rigor. The temperature was markedly hectic in type, ranging for the most part from 99° F. to 105° F., but occasionally reaching the extremes of 96° F. and 106° F. The hectic temperature continued for three and a half weeks until near the end, when it fell to subnormal. Rigor followed rigor, and it was evident that some septic process was

[1] See p. 31.

going on. As there were no external signs, infective endocarditis was suspected. A bacteriological examination of the blood revealed the presence of a staphylococcus, and, as every precaution was taken in making a culture, it is probable that this organism was actually present in the circulation. Serum was injected, but without any effect on the patient's illness, and she gradually sank, dying on June 5. Six days before death it was noticed that the bruit at the base had greatly altered in character. Instead of the continuous rumble entirely obliterating the sounds, a distinct first sound could be heard, followed by a rumbling, systolic murmur; this was succeeded by a loud, slapping second sound, after which there was a short interval and a faint bruit occurring late in diastole.

The post-mortem examination was conducted by Dr. W. H. Duncan, Pathologist to the Prince of Wales's Hospital, to whom I am indebted for the following report:—

"A slight excess of pericardial fluid was present. The heart was distinctly enlarged with hypertrophy of the walls. Tricuspid, mitral, and aortic valves showed no lesion. The right side of the heart was distended with blood, and the cavity of the right ventricle considerably dilated. Extending from the pulmonary artery into the right ventricle, an elongated, globular-shaped thrombus was present, quite $1\frac{1}{2}$ in. long by 1 in. broad. It was attached to the wall of the pulmonary artery, about $\frac{1}{4}$ in. above the pulmonary valves, and extended downwards into the cavity of the ventricle. No sign of a patent ductus arteriosus could be found. Both lungs were congested; the liver was purple in hue, owing to the great quantity of blood in its vessels. The spleen was enlarged to twice its normal size, and the spleen pulp was of a soft and friable nature, with a dark purple colour. The kidneys were somewhat pale and slightly larger than normal. There were no abscesses in the lungs or elsewhere. Thrombi are generally found in the right chambers of the heart, and originate most frequently in the retired parts of the cavities. In the auricle, the favourite seat is the appendix, and in the ventricle the neighbourhood of the apex is often the site of origin, or behind the columnæ carneæ. In this case the thrombus did not form on a valve cusp, nor on the internal surface of the right ventricle, but at a point above the valves and in the pulmonary artery; thence growing with successive deposition, until it attained a size sufficient to obstruct the free flow of blood through the vessel, and prevent the pulmonary artery valves from functioning properly.

Polypoid thrombi are uncommon. Sir W. T. Gairdner mentions one case where stenosis of the tricuspid valve was diagnosed by him some time before death, but which afterwards proved to be a polypoid thrombus, attached to the wall of the right auricle, hanging free and obstructing the tricuspid orifice like a ball valve.

[1] *Edin. Hosp. Reports*, 1893.

## DEMONSTRATION OF PATHOLOGICAL SPECIMENS.

H. B. Roderick, M.D.

(1) *Caries of Spine.*—Boy, aged 4½ years. Fell from low couch eighteen months previously; six months later deformity first noticed, and child complained of pain; six months later legs became "stiff," and child continually passing water in small quantities. On admission to hospital, angular curvature involving several vertebræ in mid-dorsal region. Spastic paralysis of both legs, no anæsthesia, incontinence of urine but not of fæces.

(2) *Caries of Spine.*—Girl, aged 7 years. Patient admitted four months before death with superficial tuberculous abscesses in the calf and elbow; these were opened and healed in about ten days. During the following three months the mother had noticed child's legs were weak, that her back was "growing out," and that she had difficulty in micturition. On admission, well-marked dorsi-lumbar curve, brisk knee-jerks, occasional Babinski, slight paresis of both legs, no frequency of micturition. Three days after admission she became drowsy and passed very little urine, 2 to 6 oz. in twenty-four hours, contained cloud of albumin, no casts. Quantity of urine increased in a few days. Child remained drowsy, and became very irritable when examined. Bowels constipated, pulse 120, no sickness, no retraction of head, no optic neuritis. Child remained more or less unconscious until death. Occasional squint, twitchings of right arm and leg, which at other times were rigid. On two occasions there were general convulsions.

(3) *Caries of Spine.*—No history obtained.

(4—5) *Macerated Specimen of Spine* (two halves, longitudinal section), *showing Angular Curvature in Lower Dorsal Region.*—Followed an injury; developed slowly. Child died of pneumonia.

(6—10) *A Series of Specimens of Spina Bifida.*

(11) *Acute Suppurative Periostitis of Tibia.*—Specimen shows extensive destruction and separation of the periosteum of the whole of the inner and posterior aspects of the upper two-thirds of the shaft of the tibia up to the epiphysial line.

(12) *Necrosis of Tibia.*

(13) *Necrosis of Tibia.*—From boy, aged 13 years. History of slight accidents two weeks before onset of pain in right ankle. The pain became continuous, and three weeks later an abscess formed over the ankle and discharged. Two weeks later right knee became swollen and painful and patient was brought to hospital. On admission, a discharging sinus leading down to bone over the lower end of the tibia. The whole of the shin was red and swollen. The knee-joint was distended and the skin over it red and shiny.

Temperature, 104° F. Incision made whole length of tibia, and knee-joint was opened and contained sero-purulent material. Leg finally amputated above knee.

(14) *Purulent Infiltration into the Cancellous Tissue of the neck of the Left Femur near the epiphysial line, and into the adjacent part of the head of the Bone.*—The part thus affected is marked off by a defined line from the surrounding cancellous tissue, which was highly vascular. The epiphysial cartilage has been nearly destroyed; there was a purulent collection in its place and the head of the bone is loose. The synovial membrane was vascular, granular and thickened. From boy, aged 3½, who died from tuberculous disease of pia mater and choroid plexuses, and effusion into the cerebral ventricles.

(15) *Myeloma of Upper End of Humerus.*—Vertical section of the upper end of the humerus of a child, aged 7 years. The shaft, for a distance of about 3 in., is expanded into a thin-walled cavity, the highest part of which corresponds with the epiphysial line, except at the inner aspect, where a small wedge-shaped area of the normal cancellous bone of the upper end of the diaphysis remains. The interior of the cavity is quite smooth, though here and there the osseous shell bounding it is thinner than elsewhere and translucent. Microscopic sections of one of the chief membraniform septa in the cavity show it to consist of spindle-celled connective tissue in which considerable numbers of multinucleated giant cells occur. The little boy fell eight months previously and complained of having hurt his left shoulder. On examination, nothing abnormal was detected. During the following seven months the boy never used the arm quite freely, and always complained of it hurting him if it was suddenly jerked. Another fall, hurting the arm in the same place, brought the lad again under observation, when the upper third of the arm was found to be enlarged—due, obviously, to bony expansion. A skiagram (shown) confirmed the diagnosis of new growth, and amputation was performed. On removing the soft tissues the scalpel broke through a thin shell of bone, from which clear, dark straw-coloured serum flowed.

(15A) Skiagram of same.

(16) *Portions of Feet amputated from Child, aged 9 years, for Symmetrical Gangrene.*

(17) *Tuberculous Epididymitis in Child.*

(18) *A Specimen of Hypertrophic Pyloric Stenosis in an Infant.*

(19) *Sarcoma of Small Intestine.*—Half the specimen of a growth in the small intestine, and its mesentery. The interest of the specimen is considerable, as the child was only 3 years old, and 6 ft. 5 in. of the small intestine were removed; this had to be done owing to the encroachment of the growth on the mesenteric blood-vessels. The growth itself is a round-celled sarcoma. The child made a good recovery from the operation and its nutrition was well maintained; in fact, for a time, it gained weight at the rate of 2 lb. a week.

(20) *Casts of Specimen of Talipes Dorsalis.*

(21) *Tuberculous Glands.*

(22) *Specimen showing Lodgment of Foreign Body in Glottis.*—(The foreign body is the mouthpiece of a toy bagpipe.)

(23) *Specimen showing Lodgment of Nail, point downwards, in Glottis.*

(24) *Sloughing Tonsil; Fatal Hæmorrhage from Internal Carotid.*—From girl, aged 1 year and 5 months. Patient had measles one month previously, followed by a "lump" in the neck of two weeks' duration. Brought into hospital vomiting blood. Shortly after admission she had profuse hæmatemesis and died. A bristle shows the passage by which the blood escaped from the internal carotid into the pharynx.

(25) *Ulceration of Internal Jugular Vein.*—From boy, aged 1 year and 8 months. Measles three weeks previously, followed by discharge from ear and enlargement of glands in neck. An abscess in the right side of the neck was opened. Twenty-four hours later there was a sudden profuse hæmorrhage from the wound, which proved fatal.

(26) *Sarcoma of Kidney.*—From child, aged 1 year and 2 months.

(27) *Sarcoma of Kidney.*—From child, aged 4 years.

J. ALDREN WRIGHT, M.D.

(28) *Heart from an Infant of Six Months.*—The specimen shows (1) incomplete interventricular septum; (2) a small conus arteriosus terminating in a small pulmonary artery with defective valves; (3) large aorta, communicating directly with the right ventricle.

The infant was very cyanosed. Hæmoglobin, 118 per cent. Red blood corpuscles, 8,460,000. Loud systolic murmur in the pulmonary area.

(29) *Femur and Tibia from a Case of Infantile Scurvy.*—The specimen shows the separation of the periosteum, from the shaft of the bones, by blood, and a fracture through the upper epiphysial line of the femur.

The infant was 10 months old. Had been ill for three months with "rheumatism." Was rickety. Had spongy gums. Hæmorrhages along both upper and lower extremities. Diarrhœa and death.

G. S. HAYNES, M.D.

(30) *A Skull from a Case of Idiocy of the Mongolian Type.*—The child presented all the usual features, and died of broncho-pneumonia. No congenital heart disease or defects of other organs. Age at death 2 years and 8 months. Child was the ninth of ten; the eldest is a microcephalic idiot and epileptic.

# Portals of Entry in Phthisis.

*An Address Introductory to a Discussion on the Subject.*

By Louis Cobbett, M.D.

In spite of almost continuous researches for the past fifty years, the question of how a man contracts tuberculosis remains unsettled. For years it was accepted by all that phthisis was caused by tubercle bacilli drawn into the lungs with the inspired air, and this opinion was supported by numerous and sound experiments; Koch even went so far as to maintain that tuberculosis of intestinal origin, even in children, was rare. But at the beginning of this century opinion was already shifting, and in 1903 Behring [2] put forward his opinion at Cassel that all tuberculosis, including phthisis, was contracted in infancy, and that the bacilli entered the body through the intestines. This opinion was not well received, and met with much opposition. But two years later Calmette [4, 5, 6, 7, and 23] and his pupils came forward denying the possibility of aerial infection, and maintaining that the "vast majority of cases of pulmonary tuberculosis were of intestinal origin." This sweeping generalization was based on few experiments, which really lent it very little support, and on some experiments on anthracosis, which seem to have been thoroughly bad ones. Other investigators, including Vallée, of Alfort [21] held similar views. Pathologists in Germany and elsewhere, however, strongly criticized Calmette's arguments, and exposed the fallacies of his experiments. Nevertheless, his views have been widely accepted, especially by physicians in this country. Sir William Whitla and Professor Symmers, 1908 [26], repeated the anthracosis experiments of Vansteenberghe and Grysez—Calmette's pupils—and got similar results; results which seemed to have been due partly to the imperfections of the method and partly to the failure to recognize the existence of spontaneous anthracosis in well-matured, town-bred guinea-pigs. Dr. Theodore Williams also became a supporter of these views, and in a recent lecture ventured to say that the question of the paths of infection in pulmonary tuberculosis had been definitely settled by the epoch-making experiments of Calmette.

In this very brief historical sketch I have said enough to show that on this question there is not only difference of opinion but conflict of

experimental evidence, and under these circumstances it seems hopeless to look for a solution. But the reason for this uncertainty is to be found in the errors of investigators. If these could be cleared away all would be plain.

One has constantly to be on the watch for confusion of fact and inference, especially in experimental work, where so much depends on the conditions of the experiment, always more or less artificial at the best. Criticism, therefore, must be brought to bear on the literary evidence. One must accept and reject; and for this task it is well to have experience of similar experimental work, in order that one may detect the pitfalls; for many things look well on paper which are thoroughly bad in practice. Such, for example, is the use of the stomach-tube in feeding experiments. This was adopted by Calmette and his pupils, partly for the purpose of introducing the infective matter into the fourth stomach, and thus preventing it getting lost in the rumen (a purpose which Sir John McFadyean [17] thinks it does not fulfil), and partly to avoid all possibility of the bacilli getting sucked from the mouth into the trachea—an accident, which is easily brought about by the use of that very tube.

The question, then, seems indeed hopeless, until one sifts out the literature with the sieve of criticism. To make an analysis of the numerous publications on the subject (Bulloch, in Allbutt's "System of Medicine," gives a list of no less than 185 original papers on the subject), allowing equal weight to each author, is only to end in confusion, and would lead to the conclusion that the whole subject needs to be re-investigated from the beginning. But this is not so, as I shall hope to show.

## The Conceivable Portals of Entry for Bacteria into the Living Body.

It must be obvious that the skin comes constantly into contact with bacteria, and it is, of course, well known that the alimentary canal is swarming with them; but it is not so generally known that the bronchi, even the smaller ones, contain these germs, yet this undoubtedly is so.

I have for the last year or two been investigating the question whether, and if so to what extent, bacteria are present in the living tissues of the body, and have never failed to find bacteria in the lungs of the various animals I have examined, while the blood and solid organs have usually been sterile. Among the germs commonly found in

the lungs of rabbits and guinea-pigs have been moulds, streptothrices, spore-bearing bacilli, and cocci; in fact, just the ordinary micro-organisms that one finds in the air. The possibility of air-borne bacteria entering the lungs has been denied by Calmette, but these observations undoubtedly prove that they do so. Moreover, if further proof is needed to show that they entered by the air-stream and not by some other channel, it is furnished by experiments in which an easily recognizable bacillus not commonly found in the lung was used. *Bacillus prodigiosus* suspended in water was sprayed into the air breathed by guinea-pigs. The finest possible form of spray produced by an "atomizer" was used, and the quantity was so small that the animals' coats were not appreciably wetted. The animals were killed so soon after the commencement of the exposure (five minutes in some cases) that no time was allowed for absorption into the lymphatics. These experiments of mine have but confirmed those of Hartl and Hermann [15], which were carried out in a very similar way in 1905. Similar results were got after spraying tubercle bacilli into the air by Bartel and Neumann [1] in 1906, and these, too, I have confirmed [8]. There can therefore be no doubt at all that air-borne bacteria freely enter the air-passages and get carried to the lung, and that the bronchial mucous membrane, like the intestinal, must be regarded as part of the surface of the living body.

The probable portals of entry, then, are to be looked for in the skin, the mucous membrane of the alimentary tube, and the mucous membrane of the bronchi.

The skin, when intact, opposes a very effective opposition to the entrance of bacteria, though not an absolute one, as the well-known experience of Garré showed when he rubbed a culture of *Staphylococcus aureus* into the skin of his arm. But though bacteria probably penetrate the intact skin with difficulty, the latter is very liable to wounds and injuries, which open a wide portal for the entry of bacteria. Tuberculosis, however, does not seem to occur often in this way. There are, of course, the cases of lupus, and not infrequently a tuberculous wound infection occurs in those who have to make post-mortem examinations in hospital, or examine the bodies of tuberculous animals. I have myself seen several of these. The tuberculosis in such cases is usually limited to the seat of infection, and does not spread, though in some cases it has reached the axillary glands [12]. On the other hand, I have seen these glands affected, in a boy, aged 14, as the result of a wound infection, in which

the wound itself showed no sign of being tuberculous, though it was rather slow to heal.

The skin, then, does not seem to be the common portal of entry for tubercle bacilli, at all events in the cases of progressive and fatal disease which we are mainly considering. The question which it is important for us to thrash out is the relative importance of the air-passages and food-passages respectively; for on this depends whether we are to consider infected air or infected food the more important, and in the end—and this is what makes the question of practical moment—whether we are still to regard the phthisical patient as the principal source of infection.

Other possible portals there are which are of some interest—the urethra, the vagina and uterus, the mammary ducts, the conjunctiva. It is very doubtful whether tubercle bacilli ever enter the body by some of these routes, and none of them can be claimed to be common channels of infection.

Hereditary transmission is upheld by Baumgarten, but few others support this view.

## The Relative Susceptibility of various Tissues and Organs to Tuberculosis.

It is common knowledge that certain parts commonly suffer from tuberculosis, while others always escape. In all animals the lungs and lymphatic glands are the parts most commonly affected, while the muscles[1] are never affected, even in the cases of most wide-spread generalization,[2] when the cloud of little tubercles in nearly all other parts shows how great must have been the shower of tubercle bacilli carried by the blood impartially to all parts of the body.

To what is this important difference in liability to tuberculosis to be ascribed? Partly it is due to anatomical position. The lymphoid tissue and the lymph glands are placed as guardians at every portal. They are the first to arrest the bacteria, and so they commonly suffer. Any bacillus which passes through them must next be carried through the right side of the heart, and the first capillaries it next traverses are those of the lungs. Hence the lungs are exposed to infection entering through the skin and alimentary canal before any other great organ. They are also exposed to bacilli

[1] Except in the monkey.

[2] As has been repeatedly seen in experimental tuberculosis in the calf and other animals.

which enter with the air-stream, as I have already pointed out. But when all due allowance is made for anatomical position there still remains a great difference in the susceptibility of various organs to be explained. Compare, for example, the kidneys of the guinea-pig and rabbit. Their anatomical position is identical, yet in the former they are seldom affected, and never severely, while in the latter they are quite the most susceptible organs after the lungs.

Next to anatomical position the most important cause of susceptibility to tuberculosis is probably the degree of phagocytic power possessed by the capillary endothelium of the organ. Experiments have shown that particles of pigment introduced into the blood-stream are picked out by certain organs, and not by others, and the former are, in the main, the organs which are liable to tuberculosis.

It is probable that some organs have more power of destroying tubercle bacilli than others, but I do not think this is the explanation of the immunity I have alluded to. On the contrary, I believe that the organs which have most power of destroying bacilli have also the greatest capacity for arresting them, and consequently suffer most; just as it is the fighting man who takes the hard knocks.

Whatever may be the explanation, there can be no doubt that certain organs possess an innate susceptibility to tuberculosis, and some observers have thought that this plays a dominant part in the localization of tuberculosis. The bacilli, they hold, gain entrance to the blood and are free to select their residence in the most eligible quarter. But this view disregards the fact that the portals are guarded by lymphatic glands and lymphoid tissue which possess extraordinary power of arresting bacteria. Much difference of opinion exists, it is true, as to the efficiency of these guardians, and as to the extent to which bacteria in general may get through them, and reach the blood and great organs. Some hold that these parts in health are sterile, while others believe that they contain many bacteria. I have myself been studying this question experimentally for one or two years, and I feel sorely tempted to dilate upon it. But I must be content with saying that in my experiments, while the lymph glands generally, and the mesenteric glands in particular, have frequently contained bacteria, the latter are seldom met with in the blood and solid organs[1]; so seldom, indeed, that one cannot be certain that they have really been

[1] I have already stated that the lungs contain numerous living bacteria.

there during life, and have not got into our cultures as a consequence of the imperfections of the method.

For reasons which would take too long to go into now I am inclined to believe that living bacteria are really present, sometimes, in normal blood and organs. But while I cannot assert the absolute sterility of these parts, I feel sure that bacteria are not present there in large numbers. Only here and there, I believe, an occasional bacterium gets through the guardian lymph glands. This is consistent with the results of feeding experiments with tubercle bacilli. These micro-organisms seem to penetrate the mucous membrane of the intestine rather easily, and to get into the lacteals. Ravenel [20] fed dogs with tubercle bacilli, and found them after some hours in the mesenteric glands of nearly all the animals. A. S. Griffith [13, 14] did the same, and found them in 50 per cent. By his experiments it was shown that the vast majority of bacilli stick in the glands, for the chyle, which was collected from the thoracic gland in the neck for some hours before the animals were killed, never caused tuberculosis when injected into guinea-pigs. Yet, probably, an occasional bacillus did get through, for the injection of an emulsion of some organ, taken not long after the experimental meal, would in quite exceptional cases cause tuberculosis [14].

Tubercle bacilli, then, like other bacteria, rather easily penetrate the intact mucous membranes, and get into the lymphatic glands, without necessarily causing a lesion at the points where they entered. Having got to the glands, in the great majority of cases, they cause tuberculosis there before they advance further. This, I think, will be conceded by anyone who remembers how frequently tuberculosis, especially when recognized for the first time after death from other causes, is primary in, or even limited to, the bronchial, cervical, or mesenteric glands. Such glands are the landmarks of the portals of entry.

But while saying this, I do not wish to deny that tuberculosis may be primary in some deep-seated part, such as a bone, or in a testis or kidney. Such cases may, perhaps, be caused by stray tubercle bacilli, which have escaped arrest by the lymph glands guarding the portal at which they entered (Dr. Griffith's and other experimental results would seem to support this), but I think it may be questioned in how many of these cases the tuberculosis was really limited to the part mainly affected, and whether, could we but look for it, we should not find an old tuberculous gland. Post-mortem examinations of such cases

are rare. Recently I examined a case of tuberculosis of the vertebral column in an old man, and found a calcareous mesenteric gland.

I am inclined to think that tubercle bacilli rarely pass through intact lymphatic glands—at least in numbers sufficient to produce tuberculosis. True, in some experiments which I did for the Commission, and which were confirmed and repeated by Dr. Griffith, tubercle bacilli subcutaneously injected into the calf were found widely disseminated all over the body a day or two after; and these must have passed through the nearest lymphatic glands; but I think in these cases the glands were altogether overwhelmed by numbers (50 mg. of tubercle bacilli had been injected), and that the experiments cannot be taken to show—and indeed were never designed to show—what takes place in natural infections.

Lesions at the portal of entry, or in the glands nearest to it, even if not invariable, are at least the rule in experimental tuberculosis. In the very numerous feeding experiments made by Griffith for the Royal Commission there were, almost without exception, lesions in the cervical and mesenteric glands, and in my own inhalation experiments I have always found the earliest and best marked lesions in the lungs and bronchial glands.

Calmette, as I have previously said, maintains that the lymphatic glands of the adult, especially the mesenteric glands, might easily be passed by bacilli. Part of the evidence with which he supports his case is derived from the experiments on anthracosis carried out by Vansteenberghe and Grysez in his laboratory at Lille. These observers state that the best way to produce anthracosis experimentally in the adult guinea-pig is to mix finely divided carbon with their food. The animals, killed twenty-four to forty-eight hours after a single meal of this kind are said to present in the lungs greyish-black islands, disseminated particularly in the superior lobes, and in the edge of the lower lobe. The glands of the mesentery are free, while those of the mediastinum are swollen and black. The same experiments made with young guinea-pigs lead to quite different results. The lungs remain free from pigment, while the mesenteric glands are absolutely infiltrated with carbon particles. This is incredible—that a single feeding with carbon should in twenty-four hours turn the mediastinal glands black, and cause grey patches in the lungs. One wonders whether the authors were aware that adult guinea-pigs frequently have patches of pigment in these situations. This is so in the comparatively smokeless town of Cambridge. In Sheffield the anthracosis in these

animals is marked. It can scarcely be absent in Lille. And yet these authors do not mention it, nor do they speak of any controls. In my own experiments I have only found just so much pigment in the lungs after feeding with Indian ink as I have found in control animals: and when I have used country-bred guinea-pigs I have never found any pigmentation at all.

Many other observers besides myself have failed to confirm Vansteenberghe and Grysez, among them Mironesco, Schültze, Remlinger, Küss and Lobstein, and Basset. Sir William Whitla and Professor Symmers alone, so far as I know, have got similar results, and the same source of error would seem to underlie both investigations.

Calmette's experiments on animals, on which he mainly bases his views, are few in number, and not convincing. They were carried out on goats, heifers, and cows. I have prepared an analysis of these experiments, but I fear it would prove tedious, and it must suffice to say that the animals after being fed with tubercle bacilli almost without exception showed some tuberculosis of the mesenteric glands. Sometimes the lungs were quite normal, sometimes they contained little tubercles. I will quote the one experiment which most strongly supports his contention. An adult goat was fed with large quantities of culture of bovine tubercle bacilli given with an œsophageal tube. Killed after sixty-five days, the mesenteric glands were normal in size, and only contained a few small calcified grains as evidence of tuberculosis, but the lungs were filled with tubercles in all stages of evolution, and there were some large cavities. This result was quite exceptional, and seeing that only sixty-five days had elapsed since the commencement of the feeding it may be questioned whether the lung disease was not of older date. But there is another possible explanation, namely, that the lung disease was set up by tubercle bacilli directly aspirated into the trachea. Calmette made nearly all his feeding experiments with a stomach-tube. The use of this tube as a means of avoiding direct infection of the lungs I have already criticized, and I believe that this precaution, which looks so well on paper, is calculated to provoke the very accident which its use is intended to render impossible.

### Aspiration into the Lungs during Feeding Experiments.

The possibility of direct aspiration of bacteria into the bronchi during feeding experiments has attracted a good deal of attention. In a few of the experiments which A. S. Griffith did at Stansted he believed that

this had occurred. And I independently entertained the same suspicion about some of my own experiments. In the case of small animals, too, where the bacilli are mixed with the ordinary food, it is difficult to avoid contaminating the litter of the cage, and tubercle may thus, having become dry, be subsequently inhaled. Again in some of my own feeding experiments with *Bacillus prodigiosus* at Cambridge I strongly suspected aspiration, for out of sixteen guinea-pigs fed with this microbe with every possible care, I found, by making cultures from the organs of the animals killed soon after feeding them, that a few of the bacilli had got to the lungs of no less than twelve of them. And in similar experiments with tubercle bacilli also I was able, by inoculating emulsified organs into other guinea-pigs, to show that a few of the tubercle bacilli had reached the lung in three out of seven animals. Suspecting aspiration I set to work with Dr. Graham Smith to find out whether this was so, killing the animals so soon after feeding that there was no time for absorption. We used guinea-pigs and rabbits, both young and adult, and every care was taken in feeding, only reasonable quantities of culture being given. Some were given a thick suspension of *Bacillus prodigiosus* in milk, put into their mouths drop by drop with a platinum loop, others took the culture spread on lettuce leaves. The results were the same. The animals were killed as soon as possible after they had swallowed the culture, usually within ten or fifteen minutes of the entrance of the first of the bacilli into their mouths, so that there was not sufficient time for the bacilli to become absorbed from the intestine, and so reach the lungs by the blood-stream. In spite of these precautions we constantly found *Bacillus prodigiosus* in cultures made from the lungs in small numbers.

While this work was in progress I found that other observers—namely, Nenninger [18], Paul [19], Ficker [10], and Beitzke [3]—had already done much the same. But most of these authors tried to facilitate the aspiration of germs from the mouth to the lungs by compressing the trachea, or otherwise causing forcible respiration. We, on the other hand, took every precaution to avoid anything unnatural which might cause the entry of bacteria into the bronchi. For a long time we were uncertain whether the bacilli got into the lungs during normal life, or whether they only entered during the death struggle. I do not know that this point has even yet been completely settled, and further experiments are required. In our latest experiments the animals were killed in the following way in order to prevent this accident. A string was adjusted with a half hitch round the neck. The

animal was killed by a sudden blow on the head with a hammer, and immediately the string was pulled tight, thus occluding the trachea. In order to learn whether occlusion had really taken place, the head and neck, when all the cultures had been made, were separated from the rest of the body and placed under water, and air was blown into the trachea through a pipette. Even when the absence of bubbles coming from the nose or mouth had shown that occlusion had been complete, colonies of *Bacillus prodigiosus* still appeared in the lung cultures.

One seems, then, obliged to admit, provisionally at least, that in feeding experiments, however carefully carried out, it is difficult, or impossible, to avoid some of the micro-organisms gaining direct entrance to the lungs. It must not be supposed that I maintain that the contamination of the lungs with food material is a gross one, far from it; the test used in these experiments was a most delicate one, and probably only a very small number of the many millions of bacilli used in each experiment reached the bronchi. But I feel confident that aspiration is a real source of danger in feeding experiments with tubercle bacilli, and that when after an experimental feeding with them the lungs become tuberculous, it is not justifiable to conclude that the latter were necessarily infected by bacilli which reached them via the intestine.

### Phthisis not due to Aspirated Bacilli.

It may be questioned whether these researches on aspiration tuberculosis, while they throw discredit on the conclusions drawn by Calmette and his school from feeding experiments, really show that pulmonary tuberculosis may, under natural conditions, be contracted this way. After all, the food in these experiments was grossly contaminated, and the colonies which grew from the lung tubes were few in number. Would such small numbers of tubercle bacilli as may chance to get in this way under conditions of ordinary life suffice to cause an infection. The answer, of course, must be No, otherwise everybody would become infected. I do not suppose that phthisis is so caused in this way except most rarely. Only in persons of great susceptibility, or when exceptional quantities of tubercle bacilli happen to "go the wrong way," is it probable that tuberculosis can be thus contracted.

### Dose and Individual Susceptibility.

Two things struck me forcibly when I worked for the Tuberculosis Commission at Stansted. First, the great difference in susceptibility

in different individuals, when doses suitable for bringing out this difference were used; and secondly, the preponderating influence of the size of the dose, which might easily swamp all differences due to variations in individual susceptibility.

### Difficulty of Infecting by Feeding in General.

Another thing which made a strong impression was the difficulty in general of infecting, by feeding, even such susceptible animals as guinea-pigs. If man, too, was not difficult to infect by feeding, who would escape infection from tuberculous milk? Calmette himself recognized the difficulty of infecting in this way, and states that he gave four goats 20 grm. of bovine tubercle bacilli between bread and butter, without result.

The point most liable to attack—the intestine—is, as one might anticipate, well guarded. It is otherwise with the lungs. While not open to the attack of common bacteria in anything like such numbers as is the intestine, it has not developed equal powers of defence, and tubercle bacilli when they enter the bronchi can effect an entrance and cause tuberculosis in numbers which would be powerless for harm if swallowed. This point is amply established by numerous experimental investigations.

The Tuberculosis Commission did no inhalation experiments, but many have been done by other observers from Koch downwards. Several of these have called attention to the great difference in the numbers of bacilli required to infect by the intestinal and pulmonary route respectively. Inhalation, indeed, is the easiest way of infecting animals with tuberculosis—in spite of Calmette's statements to the contrary. It is true that Weleminsky [25] failed in his first series of experiments to get positive results; but on the other hand, very many other observers, among whom I may include myself, have had no difficulty at all in infecting in this way; indeed, as Findel [11] has said, "there is scarcely any experiment so free from unnatural circumstances or so certain in its result as the infection of animals with tuberculosis by inhalation.

Several of these observers have attempted to compare accurately the doses of tubercle bacilli necessary to infect a given species of animal, when given by inhalation and by ingestion respectively. Gebhardt, working with diluted sputum, found that 800 bacilli sufficed to infect by inhalation, while 10 to 20 millions failed when swallowed.

Preyss, who worked in a similar manner, was able to infect guinea-pigs by inhalation with 40 bacilli. Kossell, Weber and Heuss, [16] working for the Gesundheitsamt, found that 1 mg. would infect calves by inhalation, while 1,000 times this dose given by feeding only caused minimal lesions. More recently Weber and Titze [24] have showed that it requires at least 10 mg. of bacilli to infect a calf by feeding, while $\frac{1}{100}$ mg. may succeed when given by inhalation. Reichenbach found that he could infect goats with $\frac{1}{100}$ mg. by inhalation, while 500 times this amount only produced minimal results by feeding. Findel (loc. cit.) has been able to infect dogs by inhalation with doses down to 0·14 mg., while feeding with doses up to 63 mg. produced no effect whatever. In very numerous and very careful experiments in guinea-pigs he found that 62 bacilli would constantly infect guinea-pigs by inhalation, even 20 sufficing in some cases, and in very young animals, even 5 bacilli. He gave other guinea-pigs doses up to 20,000 bacilli by feeding, but failed altogether to infect.

From these experiments, then, it is abundantly clear that many species of animals, including calves, goats, dogs and guinea-pigs, are vastly more susceptible to infection by way of the air-passages than by way of the alimentary canal.

### Imperfection of Bodily Mechanisms — relatively greater Efficiency of the Guardians of the Intestinal Portal, as compared with those of the Pulmonary.

The fact is, no bodily contrivance is perfect. Von Helmholtz's opinion of the optical imperfections of the eye is well known. In accordance with the law of the survival of the fittest, organs should develop up to the point of practical efficiency only, but no further. It is in conformity with this law, then, that the lymphoid tissue which guards the more crowded portals, and has consequently much to do, is proportionally efficient, while that which guards the less crowded portals is less efficient. They differ in efficiency much as do the London and the country policeman, and for the same reason.

The intestinal mucous membrane is, of course, closely beset with myriads of microbes. That some of these find their way to the lymphatics during normal life I am convinced, for in the several species of animals in which I have examined them I have always found bacteria. But bacteria are absent from, or at least very rare in, the blood and solid organs. The mesenteric glands, therefore, destroy

them; and since they are constantly being called upon to do this, they have become very efficient. In the lungs it is otherwise. Bacteria are present there also, it is true; but the microbes in the lungs are as nothing compared to those in the intestine; and, consequently, the lymphoid tissue in the bronchial mucous membrane and bronchial glands has developed less efficiency than the corresponding tissue in the intestine. This I take it is the reason why a few tubercle bacilli entering the air-stream with the lungs suffice to set up an infection, while a thousand times as many will fail to do so when swallowed.

### Penetration of Normal Mucous Membranes by Bacteria without a Lesion being caused there.

The readiness with which bacteria penetrate the lining membrane of the digestive and respiratory passages has already been mentioned, and in support of this I have put forward the fact that I have almost always found bacteria of various kinds in normal mesenteric glands of various kinds of animals. Further evidence of the ready penetration of the mucous membranes is afforded by the frequency with which tuberculous cervical, mesenteric, or bronchial glands, are met with in practice without any lesions at the point of entrance in the pharynx, intestine, or lung. There is abundant experimental proof also. Ravenel [20] fed dogs with tubercle bacilli, and found them in the mesenteric glands some hours after. A. S. Griffith (loc. cit.) repeating the experiment, confirmed it, and found some of the bacilli in the mesenteric glands in 50 per cent. of the animals.

Now, the number of bacteria which penetrate under quite normal conditions from the intestine to the mesenteric glands I believe to be quite small, judging from my own culture observations, and from such experiments as I have just quoted. I need not emphasize again the importance of numbers of bacteria, and of tubercle bacilli in particular, in producing infection. Again and again this was forced upon our attention at Stansted. Such small numbers of tubercle bacilli as normally get into our lacteals are ineffective; that is why, in spite of the large consumption of tubercle bacilli in milk, we do not all get tuberculosis.

### Defects in the Mucous Membranes open the Portals of Entry Widely.

From what has been said it will have been seen that the intestinal portal is normally not really open, but only just ajar. On the other

hand, there are conditions which fling its doors widely apart, and admit the entrance of germs in devastating quantities. Such conditions are minute lesions and pinpricks, which may be produced by sharp particles of food, by intestinal worms, and by other agencies; and to these minute lesions we, perhaps, should add the inflammatory foci which are said to occur on the mucous membranes in measles and some other of the specific fevers. It will be remembered that Pasteur, in some of his earlier experiments with anthrax, as related by Vallery-Radot [22] was unable to infect some sheep by feeding with the spores of *Bacillus anthracis*, until he mixed some thistles with the infected hay.

With regard to intestinal worms and other parasites, I have myself had some instructive experience of how they may open the portal to bacterial infection in general, though I have not been able to detect them assisting to cause tuberculosis. Working for the Grouse Commission, Dr. Graham Smith and I [9] found that the existence of large numbers of *Strongylus pergracilis* in the cæca of these birds was always accompanied by the appearance of characteristic intestinal bacteria of the *Bacillus coli* group in the liver and other organs, micro-organisms which we never found in these parts in the bird which had none of the nematodes or only a small number. Again, in the young rabbit with coccidiosis of the intestine we constantly found *Bacillus coli* in the liver and elsewhere, though we could never find this in the liver of rabbits with normal intestines, nor even in those suffering from coccidiosis of the liver itself. Quite recently I have made cultures from the organs of a few sheep severely infected with *Strongylus contortus* in the fourth stomach. Again *Bacillus coli*, which I have found normally present in this stomach, was present in the livers, though it was absent from that of a control animal which harboured only a few of these nematodes. If, then, such agents as these, by perforating the mucous membrane, open a way by which *Bacillus coli* gets to the intestinal organs, may it not well be that they act as predisposing causes of tuberculosis?

I believe that in the case of the lungs, too, analogous agents are at work, permitting tubercle bacilli to pass the mucous membrane in quantities sufficient to produce a severe infection. I refer to sharp spicules of steel and stone, which, entering the air-passages in the form of dust, may very well act as the sharp extremities of the nematodes do in the intestine. Such is the explanation, I believe, of the great frequency of phthisis among the Sheffield grinders, the Cornish tin-miners, and South African gold-miners, and among the potters. It

will be observed that dust alone does not necessarily predispose to phthisis; the coal-miners, though their lungs become blackened to ebony, suffer from phthisis less than the average Englishman. It seems on the whole only where the dust contains sharp spicules that it is dangerous.

This ends my case. In conclusion, I should like to say, that while I have no doubt that tuberculosis is frequently of intestinal origin, especially in children, inhalation is the common method of infection, not only in phthisis, but in other forms of tuberculosis, especially those in which the bronchial glands seem to be the parts first affected.

REFERENCES.


[1] BARTEL and NEUMANN. *Wien. klin. Wochenschr.*, 1906, xix, pp. 167, 213.
[2] BEHRING. *Deutsch. med. Wochenschr.*, Leipz., 1909, xxxv, p. 1729.
[3] BEITZKE. *Virchow's Archiv*, Berl., 1906, clxxxiv, p. 1.
[4] CALMETTE and GUÉRIN. *Ann. de l'Inst. Pasteur*, Par., 1905, xix, p. 601.
[5] *Idem. Ibid.*, 1906, xx, p. 353.
[6] *Idem. Ibid.*, 1906, xx, p. 602.
[7] CALMETTE, VANSTEENBERGHE, and GRYSEZ. *Compt. rend. Soc. de Biol.*, Par., 1906, lxi, p. 548.
[8] COBBETT. *Journ. of Path. and Bact.*, Camb., 1910, xiv, p. 563.
[9] COBBETT and GRAHAM-SMITH. *Journ. of Hygiene*, Camb., 1910, x, p. 1.
[10] FICKER. *Arch. f. Hyg.*, München u. Berl., 1905, lii, p. 179; *ibid.*, liii, p. 50.
[11] FINDEL. *Zeitschr. f. Hyg.*, Leipz., 1907, lvii, p. 83.
[12] GLYNN. *Liverpool Med.-Chir. Journ.*, 1903, xxiii, p. 163.
[13] GRIFFITH, A. S. Second Interim Report, Royal Commission on Tuberculosis, London, 1907, App. 1, p. 628.
[14] *Idem.* Final Report of Royal Commission on Tuberculosis, p. 27.
[15] HARTL and HERMANN. *Wien. klin. Wochenschr.*, 1905, xviii, p. 798.
[16] KOSSEL, WEBER, and HEUSS. *Tuberculose-Arbeiten aus dem Kaiserlichen Gesundheitsamte*, Berl., 1905, 5. Heft.
[17] MCFADYEAN. *Journ. of. Comp. Path. and Therap.*, Edinb. and Lond., 1910, xxiii, p. 244.
[18] NENNINGER. *Zeitschr. f. Hyg.*, 1898, xxxviii, p. 94.
[19] PAUL. *Zeitschr. f. Hyg.*, 1902, xl., p. 468.
[20] RAVENEL. *Journ. Med. Research*, Boston, U.S.A., 1903, x, p. 460.
[21] VALLÉE. *Compt. rend. Soc. de Biol.*, Par., 1905, lviii, p. 568.
[22] VALLERY-RADOT. "Life of Pasteur," Trans. (Constable, London), p. 284.
[23] VANSTEENBERGHE and GRYSEZ. *Ann. de l'Inst. Pasteur*, 1905, xix, p. 787.
[24] WEBER and TITZE. *Tuberculose-Arbeiten aus dem Kaiserlichen Gesundheitsamte*, Berl., 1910, 10. Heft.
[25] WELEMINSKY. *Berl. klin. Wochenschr.*, 1905, xlii, p. 743.
[26] WHITLA. "The Cavendish Lecture on the Ætiology of Pulmonary Tuberculosis," 1908, *Brit. Med. Journ.*, ii. p. 61.

## DISCUSSION.

Dr. CAUTLEY: On behalf of the Section I beg to express the thanks of the present members to Dr. Cobbett for the admirable manner in which he has opened this discussion, and for the great amount of care and trouble which he has obviously taken in placing his experience and opinions before us in such a lucid manner.

It is advisable that the scope of the discussion should be somewhat limited and not include the less common portals of entry of the tubercle bacillus. Placental infection may, I think, be entirely omitted. Cutaneous infection is rare and need not detain us for long. Debove (1911) has reported a case I should like to mention, for it proves that the bovine bacillus can produce adenopathy and pulmonary tuberculosis in the human adult. Infection took place from an accidental scratch on the hand, and pulmonary tuberculosis followed axillary adenitis.

The argument should mainly centre round the alimentary and respiratory tracts, including the tonsils and nasopharyngeal mucosa, as the portals of entry. It is extremely difficult to dissociate one from the other in clinical work. In the remarkable instance reported by Reich (1878), two midwives divided the obstetric practice of a town of 1,300 inhabitants. Both practised mouth-to-mouth aspiration and blowing into the nose of the newborn. One midwife was tuberculous, and within fourteen months ten of her babies died from tuberculous meningitis, while those under the other midwife were unaffected. Similar instances have been recorded by Marfan and Demme. They prove human infection, but not the portal of entry.

It is necessary also to consider the possibility of infection by tuberculous milk. So many arguments concerning the portals of entry involve the mode of infection that it will be impossible to limit the discussion strictly to these portals. If we admit that tuberculous milk is the chief source of infection, it almost certainly follows that the infection enters by the alimentary tract.

In addition we may consider the question of the identity or relationship of the human with the bovine bacillus. In all probability these organisms are modifications of a common stock, closely allied, though presenting many slight and important differences. The human bacillus can produce tuberculosis in the bovine animal, and the bovine species can set up the disease in the human subject.

The bovine organism is the more virulent. This raises a further point—namely, that of dosage. It is not sufficiently recognized that the

dose is of great importance, as well as the virulence of the organism used. Too much importance has been attached to the nature of the soil and the virulence of the bacillus, and too little to the number of the bacilli disseminated. Dr. Cobbett's investigations, to which he has briefly referred, show this very clearly. In the subcutaneous infection of calves with human bacilli the disease became arrested ultimately, no matter the dose injected. And in order to make certain of a fatal issue on injecting bovine bacilli, he found that a dose of 50 mg. was needed. Still larger doses were required in feeding experiments. According to Eastwood, a milligramme contains 4,500 million bacilli. Consequently it is difficult to attach overwhelming importance to the comparatively few tubercle bacilli ordinarily ingested in cow's milk. Observations like this strongly support Dr. Cobbett's hypothesis of respiratory infection. If he can prove with certainty that the inspiration of a few bacilli can set up tuberculosis—and apparently his investigations warrant this assumption—then it becomes incredible that the alimentary tract can be the portal of entry, seeing that in feeding experiments such enormous doses are requisite in order to produce infection.

Passing to another point, we may consider whether a small dose gives rise to localized or general infection, or perchance increases immunity. It has been shown by feeding experiments, which are apparently trustworthy, that the bacilli can penetrate the intact mucosa of young animals and reach distant parts of the body. Under favourable conditions even one bacillus might become localized in a gland, multiply, and cause caseation. Both the tracheo-bronchial glands and the lungs can be infected via the alimentary tract. Rabinowitch (1908) inserted bovine bacilli into sucking pigs through a gastric fistula with the œsophagus closed, and found them in blood, lungs, and viscera in twenty-two hours. Such a result is conceivable in infants fed on infected milk. If the bacilli are not detained in the glands or lungs, and pass onward to the left side of the heart and the meninges, a meningitis may be set up and no local focus be found after death. There are occasionally cases of tuberculous meningitis, though I admit they are rare, in which no local focus can be found on most careful examination.

Alimentary infection is not necessarily milk infection. Were such the case one would expect a much greater frequency of tuberculosis in early life, if we can rely on the figures given to prove the frequency of the disease in cows. It is said that 2 per cent. of the cows in England have tuberculous udders, and that 50 per cent. have tuberculous lesions in the carcase. Debove (1911) states that there are over

eight million cows in France, and that from 15 to 50 per cent., according to the district, are tuberculous, and that 5 to 15 per cent. of these have tuberculous udders. In spite of these figures infantile tuberculosis is not a very common disease—not nearly as frequent as we should be justified in expecting on the assumption that tuberculous cows' milk is the main source of infection.

Unconscious feeding experiments may be quoted in support of my argument. In the course of the German Government Investigation, 1905-09, there were investigated sixty-nine instances in which the milk of tuberculous cows was consumed in some form by 151 children and 209 adults. Yet only two of the children were affected, and they merely had a mild adenitis. These children were the youngest of the family. They had taken the milk for a year and for a year and a half respectively, and the milk was from cows with virulent disease of the udder. Such cases imply that to secure human infection by tuberculous milk the requirements are youthful age, a badly infected milk, and the prolonged ingestion of such milk.

I cannot help feeling that the probability of the infection being of human origin is much greater. Tuberculosis is common in Japan, China and India, although the infants in these countries are breast-fed for two to three years. In hospital practice tuberculosis is quite common, and though statistical figures are not available, it is probably relatively more frequent than among the better classes, although the poor get less milk, and that of an inferior quality. In nine out of seventeen successive tuberculous hospital patients, who died under 1 year of age, there was strong reason to suppose that the source of infection was a tuberculous relative. Some of these nine infants were said never to have tasted cows' milk. Moreover, the sort of case one sees in consulting practice is that of a child such as I saw recently. She was 3 years old, brought up on cooked milk, and apparently had been healthy until she developed tuberculous meningitis. Possibly the source of infection was a tuberculous relative with whom she had been in contact for a fortnight a year previously. Cases of this type are not uncommon. In other instances a breast-fed child has developed the disease shortly after being weaned, and the assumption has been that infection was derived from milk, but it is not always possible to ascertain the source. Nuttall has estimated that a patient with open tuberculosis may expectorate 4,000 million bacilli daily. The chances of infection for a baby brought in contact with such a case are enormous. During the crawling age the chances of infection are still greater. Dieudonné, of Würzburg (1903), examined the nasal secretion and the

dirt on the hands of children, aged 9 months to 3½ years, and found tubercle bacilli almost always present. The opportunities for the repeated infection of a child of the crawling age, in contact with open tuberculosis or living in a room previously occupied by such a patient, and not disinfected, are very great.

As portals of entry the tonsils and adenoid tissues of the nasopharynx are of considerable importance, yet I would point out that cervical adenitis is not certain proof of infection through the mucous membrane of the mouth or pharynx. It has been produced experimentally by the injection of bacilli into the stomach. The whole lymphatic system and the lungs can be thus infected.

Clinical experience and a careful consideration of much of the enormous amount of the experimental evidence now available have led me at present to the conclusion that tuberculosis in children is generally alimentary in origin, and that the infection is much more frequently derived from the human subject than from cows' milk. Dr. Cobbett's experiments on aerial infection will lead me to reconsider the matter very carefully. Still, I think it certain that milk infection does sometimes take place, but that too much importance it attached to it, and too little to human infection. No baby should be allowed to be in contact with a case of open tuberculosis.

Another point for consideration is whether tuberculosis is anaphylactic. Does the repeated ingestion of small numbers of tubercle bacilli increase immunity by the production of auto-cytotoxins, or does it increase susceptibility? This question is somewhat outside the scope of our discussion though connected therewith.

Mr. R. CLEMENT LUCAS said that when he read the notice intimating that Dr. Cobbett would give an address on "The Portals of Invasion in Tuberculosis" he wondered what part of the human body that gentleman could possibly exclude, and he was pleased to hear him say, after a time, that he admitted a certain number were from the cuticular surface and the outside. He (Mr. Lucas) feared that only from that standpoint could a surgeon discuss the subject. Indeed, if he were to follow strictly the limitations which the President had laid down, he must resume his seat at once—i.e., if he were only to discuss the cases where infection occurred through the intestine and the respiratory tract. Professor Howard Marsh would remember when they were young surgeons together, attached respectively to St. Bartholomew's and Guy's, and each of them attached to a children's hospital, what an immense number of children came under their care suffering from tuberculous

disease of the glands of the neck, and how the majority of those cases were infected through the scalp, pediculi of the scalp causing lesions which led to inoculation. When the exciting cause was removed a large number of the glands would subside, but some continued to enlarge, and when they were excised they were found to be the seat of tubercle. Infection of the glands of the neck through lesions of the scalp he regarded as a common cause of tuberculosis. He could have mentioned many cases of direct inoculation with tubercle bacilli; but these had been ruled out by the President, and therefore he would only allude to two remarkable cases of infection through unusual sources which had come under his notice in the last few years. He was connected with a life office, where the actuary became phthisical. He had operated upon that gentleman ten years before on account of tuberculous glands of the neck. No recurrence took place, and he remained in health till symptoms of phthisis began, and lasted three years before he died. During this time he suffered from a tuberculous ulcer on the inside of his mouth, for which he consulted Mr. Lucas. The actuary and one of the directors of the office were in the habit of putting pens in their mouths—the director being 62 years of age. The director subsequently developed an ulcer on the right side of his tongue, and for fourteen months was under treatment for that ulcer alone before being seen by Mr. Lucas. It resisted all kinds of local treatment. He had it scraped, and showed that it was tuberculous. There were no signs of lung trouble at this time. Subsequently a hard lymphatic line could be traced from the side of the tongue to the side of the larynx, and little attacks of fever occurred, and he (Mr. Lucas) predicted that the director was getting infected from the tuberculous ulcer on his tongue. He soon developed distinct evidences of the disease of his lung, for which he underwent various treatments at home and in sanatoria in the South of England. At the end of three years he died of phthisis. He had no doubt that the trouble started from an inoculation by the actuary's pen.

Another case was one of tuberculosis of the urinary tract. A married officer, who had only one impure connexion with a tuberculous woman, suffered from what used to be spoken of as leucorrhœal urethritis. There was no pain and no scalding, only a slight leucorrhœal discharge. That continued for a short time and then disappeared. He then began to have irritable bladder. That continued, and his urine was examined, and was found to contain tubercle bacilli. Subsequently he had an abscess of his prostate: the disease extended to his kidneys, and he died of tubercular infection of the urinary tract. These cases, he thought, might be worthy of record.

Mr. WHITELOCKE raised the question of infection through the Fallopian tubes, and asked Dr. Cobbett how he explained infection of the peritoneum in cases of tuberculous salpingitis. About twelve years ago he was called in to operate on a hospital nurse who had symptoms of intestinal obstruction. It was a fairly acute case. In operating, he found that her right Fallopian tube was cystic, and from the ostium could be traced, in a fan-like wave, miliary tubercle throughout most of the pelvic peritoneum, covering the uterus and the upper surface of the bladder, and extending round to the pelvic colon. The tube was adherent to parts of the large intestine, causing the chronic obstruction. After some difficulty he was able to remove the tube satisfactorily. It was cystic, and contained much grumous material, which had many tubercle bacilli in it. The Professor of Pathology at Oxford at the time made experiments with the guinea-pig, a considerable number being injected with the material, and they all had acute tuberculosis. The case made a great impression on him, as she was a general favourite and made herself popular with her patients. To-day she was well. She had had no recurrence, and her general peritonitis disappeared after three months' illness. There was no special after-treatment, nothing but good food and fresh air. The case had led him to occasionally observe similar ones, and the reason he cited them was that it had struck him as forcibly illustrating a probable local channel of infection. The nurse was a young widow who had lost her husband from acute pulmonary tuberculosis. Since then he had had two more cases which were very similar in nature. These were as follows: The first was a young girl, aged 17 years, who was sent to him on account of intestinal obstruction. On opening her he found both her Fallopian tubes were cystic and contained some material having in it ordinary tuberculous germs, but not a mixed infection of other germs. He had some check experiments made from her secretions, with the result that they were proved to be tuberculous. Two of the girl's brothers, who lived in the same house, died from pulmonary tuberculosis. The other case was that of a child, aged 8 years, who had one Fallopian tube infected in the same way; it was also cystic. That child also came from a tuberculous household, her mother and uncle having lived in the same house and died of tubercle. If there should be time, he would like to hear Dr. Cobbett's idea of the means of infection in those cases, for he himself regarded them as cases of infection probably through the genital tract.

Dr. H. D. ROLLESTON expressed his high appreciation of Dr. Cobbett's paper, which dealt with a subject upon which the author had spent

many years in studying for the Tuberculosis Commission. A point upon which he was about to speak when Mr. Whitelocke rose was the path of tuberculous infection through the female genitalia. Though rare, this deserved mention. Even in cases in which the uterus itself was not infected, tubercle bacilli might pass up from the vagina by the ascending mucous currents described by Mr. Bond, of Leicester, and give rise to primary tuberculous salpingitis. Primary tuberculous salpingitis probably never occurred in children, but was mainly seen in married women. But necropsies in young girls sometimes showed such extensive enlargement of the Fallopian tubes in tuberculous peritonitis as at first to suggest that the infection was primary in the tubes. In such cases it was important to determine by sections whether the tuberculous infection had spread from the peritoneal surface or from the mucous surface of the Fallopian tubes, as it should do when the infection arrived by way of the uterine passages. The real question in the present debate was, how much more often tuberculous infection occurred via the respiratory passages than via the alimentary canal. Dr. Bulloch's critical article brought forward a wealth of evidence to show that the respiratory tract was the important path of infection. The statistics as to the incidence of primary alimentary tuberculosis in children were interesting; those for London, Edinburgh, and other parts of the kingdom giving a mean of 19 per cent., as against 4 per cent. in Germany and 3 per cent. in the United States of America.

Probably one reason why tubercle bacilli invaded the alimentary canal less readily than the respiratory tract was that the acid gastric juice destroyed, or greatly inhibited the growth of, the bacilli. It was interesting to note that in certain rare cases of gastric carcinoma in which the hydrochloric acid of the gastric juice was absent, tuberculous infection of the gastric carcinoma and even large caseous tubercles in the liver had been noted. Possibly the rarity of tuberculous invasion of the lungs in the subjects of mitral disease was an argument against the intestinal origin of pulmonary tuberculosis. For if tubercle bacilli reached the lungs via the lymphatics, and were intravascular so to speak, their growth would not be so interferred with as in the case of bacilli inhaled into the bronchioles of the moist lungs of patients with backward pressure. Probably the rarity of tuberculous infection of the lungs in mitral disease depended on the inhaled bacilli being removed before they had time to effect invasion of the lung substance.

Dr. T. R. Whipham said: In the majority of cases the portal of invasion in tuberculosis is through mucous membrane. The mucous

membranes of the respiratory and intestinal tracts are undoubtedly the most vulnerable, but which is the more important site of infection is still a matter of some dispute, though personally I am inclined to agree with Dr. Cobbett, that in tuberculosis at all ages the former plays the greater part. Other possible sources of infection are by means of the placental circulation, and through the skin. The possibility of congenital tuberculosis is so remote that it may be left out of consideration in the present discussion, while, as a general rule, scarcely more importance can be attached to the cutaneous structures, though there are authenticated instances of accidental inoculation through an abrasion, and the fact that lupus may be a starting point of the disease cannot be ignored.

The question, for all practical purposes, thus resolves itself into a consideration of the respiratory and intestinal tracts. Welch and Albrecht are of opinion that the tonsillar region, which is in the direct line of both respiratory and alimentary introduction of the bacillus, is the most vulnerable point of all, and Grober found experimentally that there was a direct route from the tonsils to the pleuræ and lungs by way of the cervical lymphatic glands, a fact which led him to suggest that to a tonsillar infection could be attributed the fact that it is the apices of the lungs which are chiefly attacked. In this association adenoid vegetations must also be borne in mind. Even if they do not act as a direct portal of infection, they may play a subsidiary, though important, part by inducing the habit of mouth-breathing, and thus eliminating the filtering properties of the nares. Carious teeth also may play their part in the infection, and it is not uncommon to find the condition associated with pulmonary tuberculosis.

By those who hold that pulmonary infection arises through the cervical glands various routes by which the tubercle bacilli may gain access to the lung have been suggested: First, that from the cervical glands they enter the lymph-stream, and by means of the lymphatic vessels enter the venous system, and so are conveyed to the lung; secondly, that their path is from the cervical to the supraclavicular glands, and thence to the apex of the lung; and thirdly, that from the cervical they pass to the bronchial glands, and thence are conveyed to the blood-stream and the pulmonary tissues; though in this connexion it must be remarked that no communicating channels between the cervical and the bronchial glands have been shown to exist.

As to the question whether the infection is air-borne or food-borne, Koch, not so many years ago, said: "In by far the majority of cases of tuberculosis the disease has its seat in the lungs, and has also begun there; from this fact it is justly concluded that the germs of the disease

must have got into the lungs by inhalation." The inhalation theory is supported by the conditions known as anthracosis, silicosis, &c., which occur in workers living in a dusty atmosphere, and have also been produced experimentally in animals. In such cases it has been thought by Arnold and others that the particles which escape the expelling action of the ciliated epithelium are inspired into the pulmonary alveoli, and are then taken into the alveolar cells, or are swept onwards by the lymph to the bronchial glands; and the same was supposed to be the case with the tubercle bacilli, which either develop into tubercles in the lungs, or pass onwards to infect the glands in the mediastinum. The way, however, in which the lungs become affected as the result of inhalation is not such a simple matter as might at first sight be supposed, and there are several views as to the exact manner in which such an infection may be brought about. Thus, Orth is of opinion that in a majority of cases the lungs are affected by direct aerial infection through the air-passages, and that the bronchial glands are subsequently involved. Ribbert also upholds the same view as to inhalation being the means by which the disease is acquired, but he differs from Orth in that he supposes that the inhaled bacilli are absorbed and carried straight away to the bronchial glands, which, in consequence, become tuberculous, and that the lungs are infected secondarily by a spreading outwards of the disease from the original foci in the glands. Birch-Hirschfeld, and Abrikossow, on the other hand, maintain that the bacilli are inhaled into the bronchi, and that the disease begins as a peribronchitis of a tuberculous nature, which tends to spread both centrifugally and centripetally. After the onset of caseation infected particles from these lesions become aspirated into the pulmonary alveoli and give rise to tuberculous foci there.

The actual infection is carried to the pulmonary tissues by means of either fluid or solid particles. Flügge believes that the disease is spread by the inhalation of minute droplets of fluid in which tubercle bacilli are suspended, such droplets being derived from the exhalation or expectoration of infected persons, while Cornet attaches more importance to dried particles and dust as the carriers of infection, and in holding this view he confirms the opinion of Koch.

Another argument in favour of the inhalation theory is put forward by Findel, who found that five million tubercle bacilli when inhaled by a dog caused extensive pulmonary tuberculosis, while 1,220 times that dose, when given by the stomach, produced no effect. Other experiments on guinea-pigs showed that as small a number as twenty tubercle bacilli were sufficient to cause pulmonary disease when inhaled, whereas

the animals were able to withstand 382,000 times that dose when introduced into the alimentary canal.

The possibility of an intestinal source of infection was demonstrated as long ago as 1868 by Chauveau, who succeeded in transmitting the disease to heifers by the ingestion of infected matter from a tuberculous cow. In 1903 von Behring re-opened the question, and since then much has been written on the subject. As regards the stomach, it must be remembered that there is no certain evidence that infection occurs from the surface of that organ. The gastric juice, moreover, is inhibitory to the growth of tubercle bacilli, but it is not bactericidal, at least during the usual period of gastric digestion. Tubercle bacilli in a virulent state, therefore, can pass on into the intestines. Cadéac and Malet, amongst others, have failed in their experiments to produce pulmonary tuberculosis by inhalation, and Vansteenberghe and Grysez have also cast doubts on the origin of anthracosis through inhalation of particles, finding that coloured dust introduced into the alimentary tract could easily find its way into the lung, and that inhalation alone, after ligature of the œsophagus, failed to produce the condition. In other of their experiments the digestive tract was left patent, and through a low tracheotomy one of the main bronchi was completely plugged with cotton-wool, thus cutting off one lung entirely. After prolonged inhalation of a carbon-laden atmosphere it was found that the lung, by means of which respiration had been carried on, showed deposits in the bronchi and alveoli, and to a certain extent in the parenchyma also, while the lung, which had been cut off, presented a definite infiltration of the parenchyma with carbon, the bronchi and alveoli being free. The experiments of Whitla and St. Clair Symmers led to a similar conclusion. Injections of China ink into the vein of a rabbit's ear caused a deposit of carbon in the lung within an hour, and a solution of the same substance introduced by means of an œsophageal tube into the stomachs of guinea-pigs resulted in the lungs being charged with carbon, while the upper mesenteric glands were free. The same was also found to be the case when the carbon particles were injected into the peritoneal cavity. It appears that the carbon particles gain an entrance through the intestinal epithelium, and, reaching the lymphatics, pass through the mesenteric glands, and finally find their way into the thoracic duct and so into the venous circulation and the lungs.

Vansteenberghe and Grysez found that the disposition of carbon particles was not the same in both young and adult animals. In young guinea-pigs, fed by means of the stomach-tube, the particles, after reaching the mesenteric glands, were there arrested, so that the lungs

remained free, whereas in adult animals they reached the lungs in the manner just described. Inhalation experiments on young guinea-pigs, which were made to breathe a carbon-laden atmosphere for a long time, showed that the particles reached the lung, but were not present in the parenchyma, while in the case of rabbits, which breathe through the nose, they had not even reached the trachea.

It is argued that the same thing may occur in the course of tuberculous infection. Primary intestinal tuberculosis is very rare, and on the analogy of anthracosis there is no need to presuppose such a lesion. Tubercle bacilli administered in fatty food to dogs, guinea-pigs, and other animals, have been demonstrated in the chyle within a few hours, the intestinal surface being found to be intact. Calmette and Guérin and Breton have injected into the stomach through a tube emulsions of living bacilli, with the result that the bacilli have been absorbed through the intestine and have given rise to tuberculous deposits in the mesenteric glands, lungs, and other viscera. In animals which lived beyond thirty days the lungs and mediastinal glands were always affected, while in guinea-pigs surviving fifty or sixty days the deep cervical glands were nearly always tuberculous, and even after ten days the entire lymphatic system was found to be infected, as shown by injecting other animals.

Young and adult animals show the same difference in their reaction to the infection of tuberculosis as in the case of carbon particles. Calmette and Guérin, experimenting upon young goats, found that tubercle bacilli introduced through the stomach-tube were arrested in the mesenteric glands, but that as soon as these became caseous the bacilli filtered through and the lungs were invaded. In the case of adult goats the bacilli at once passed through the mesenteric glands and attacked the lungs without causing the glandular lesions which were obvious in the young animals. The variations in the infection in young and adult animals may possibly be explained by histological differences in the mesenteric glands at different ages. In the adult the alveoli of the glands are looser in structure, and consequently the bacilli may be supposed to pass through into the chyle and thence find their way to the fine capillaries of the lungs and the bronchial glands. The reason why the bronchial glands may become affected after the mesenteric have escaped is explained by Bartel as due to the difference in behaviour to the tubercle bacilli on the part of the various groups of glands, tuberculosis, according to him, becoming manifest in a more severe degree and at an earlier period in the bronchial glands than in any others.

Von Behring affirmed that adult phthisis was the result of an old intestinal infection which had occurred in infancy, but Calmette and his colleagues dispute this on the ground that their experiments show how easily the lungs can be affected in adult animals through the intact intestine. It must be remembered, however, that the introduction of tubercle bacilli into the alimentary tract is not necessarily followed by tuberculosis even in the most susceptible animals. The bacilli may pass straight through, or if they are absorbed they may be taken up by the leucocytes and be destroyed.

Now what is the relative importance of the bovine and the human forms of the bacillus? Koch enunciated the dictum that the two were different, but it is generally agreed that the bovine, human, and possibly the avian forms are really the same organism, though modified by environment.[1] According to German statistics, one-tenth of the bacilli isolated from adults are of bovine origin, while the proportion in children rises to as high as 50 per cent., presumably on account of the large amount of milk consumed in early life. Bovaird found that the organism was of the *bovine* type in 70 per cent. of cases of abdominal tuberculosis in children, and rarely so in other cases, while Welch also states that the number of human lesions originally due to bovine infection is probably even higher than is at present known.[2] According to the Registrar-General's Reports, about one-ninth of the total deaths from tuberculosis occur from tuberculous meningitis, and of these 60 to 70 per cent. are under the age of 5 years; about one-eleventh succumb to tuberculosis of the peritoneum and mesenteric glands, of which the same percentage are under 5 years of age; and about one-fourteenth are due to generalized tuberculosis, 40 to 50 per cent. of which are under 5 years. A vast number of children thus die annually under the age of 5 years from tuberculosis, and if, as reports seem to show, one-half or more of these are infected by the bovine bacillus, it seems reasonable to suppose that in children at any rate the disease is frequently acquired through the intestinal tract, in spite of the fact that there are countries, such as Japan, where tuberculosis is rife and milk, the common carrier of infection, is but little consumed. In adults, on the other hand, tuberculosis is essentially a pulmonary disease. In them the infection is due, in the majority of cases, to the human variety of the bacillus and is

[1] In the Report of the Royal Commission on Tuberculosis, which was issued a few days after the meeting, the Commissioners regard the bovine and human forms as varieties of the same bacillus.

[2] The Report of the Royal Commission states that nearly one-half of the cases of primary abdominal tuberculosis in children could be referred to the bovine bacillus.

probably acquired by inhalation. The mucous membrane of the digestive tract in adult life apparently affords a protection against the pathogenic organisms, which is not developed in the infant, and to this must be attributed the possible difference in the portal of infection. Even in children also the theory that the disease may be due to inhalation is not without support. Gaffky and Rothe have recently found in 400 necropsies on children evidence of tuberculosis in 19·5 per cent. In one case only was the bacillus unmistakably bovine, the rest being apparently exclusively of the human type. These results, they affirm, show the preponderant importance of inhalation for the development of tuberculosis in children. The same opinion is also held by such observers as Albrecht, Escherich and Comby, the two last going so far as to state that all infection occurs through direct human contact.

The question as to the portals of invasion in tuberculosis is a complex one, and a definite solution has not as yet been arrived at. However strong may be the arguments in favour of the inhalation theory—and in adults this mode of infection seems the most likely—in children, at all events, the possibility that the disease may be acquired through the intestinal tract cannot be excluded.

Dr. COBBETT, in reply, said it was interesting to hear that tuberculosis in the cervical glands could occur from lesions in the scalp produced by pediculi in that part. It was new to him. It was another instance of a portal of entry being thrown widely open. With regard to tuberculous salpingitis, Dr. Rolleston had answered that more fully than he could have done himself. He had frequently seen in the female rabbit tuberculosis of the Fallopian tubes and uterus follow intraperitoneal injections of tubercle bacilli. In reference to the effect of the acidity of the gastric juice, he confessed that that was a point to which he had not given sufficient attention. It was an important point, and he was not prepared to say much about it at present. Tubercle bacilli were fairly resistant organisms, and were not easily killed by gastric juice. The matter would receive his future attention.

The chief anatomical differences between the tuberculosis of children and that of adults would seem to be: first, that the former is frequently abdominal while the latter is usually pulmonary in situation; and, secondly, that in children the lesions have a tendency to affect severely, or even be localized in, the lymph glands, while in the adult this is not so. The relatively greater frequency of abdominal tuberculosis in children was probably due to their habits. In milk, and particularly in dirt picked up from the floor, or derived from playthings which they put

into their mouths, they swallow tubercle bacilli far more frequently and in larger quantities than do adults.

With regard to the greater tendency for the glands to be affected in children than in adults, he pointed out that the lymphatic gland and lymphoid tissue generally was the great protective agent which defended the body against the invasion of bacteria, and being in the thick of the fight was itself most liable to be injured. The lymphoid tissue was disposed in two main lines of defence. The first was to be found in that scattered along all the mucous membranes, both in the alimentary and respiratory tracts; the second was to be found in the cervical, mesenteric and bronchial glands, each set having for its function the arrest and destruction of invaders from its own particular coast-line. In children the main defence and correlated injury seem to fall upon the second, in the adult on the first line. He suggested that possibly the lymphoid tissue in the mucous membranes might be relatively less efficient, at least as regards the tubercle bacillus, than it was in the adult. If the lymphoid tissue in the mucous membrane of the bronchi is relatively little developed in the child it would explain why the latter commonly escapes primary pulmonary tuberculosis, for the bacilli would pass through to the bronchial glands (as they undoubtedly do) and from there they would set up a general infection.

The relative infrequency of general tuberculosis in the adult is probably connected with their greater powers of resistance, making locally ineffective quantities of bacilli, which would have caused progressive lesions in the child.

With regard to the relative importance for man of the bovine and human types of tubercle bacilli, he did not entirely agree with what the Chairman had said. By far the most important works bearing on this question were the various reports of the Committee of the "Gesundheitsamt" and of the Royal Commission on Tuberculosis. The final report of the latter was, he believed, already presented to Parliament, but he had not yet seen it. He was aware, however, of its purport. Phthisis in the adult, which caused 70 per cent. of all the deaths from tuberculosis at all ages, had been shown to be almost always due to the human tubercle bacillus. There were only two exceptions in all the literature. Dr. A. S. Griffiths had found the bovine type of bacillus alone in sputum from two cases. He agreed that tuberculosis in children was frequently of intestinal origin, judging from anatomical evidence, and in such cases bovine bacilli had been found fairly often. The immense majority of cases of infection of man with bovine tubercle bacilli had occurred in children under 5 years. Deaths from tuberculosis of children under

5 years formed 20 per cent. of the total mortality from that disease. Now, taking the cases of this age investigated by the English and German Commissions (all too few for our purpose and practically all we had to go by), it was found that roughly one-third of them were caused by the bovine bacillus. Now, supposing that the cases investigated were fairly representative of tuberculosis at this age (as a matter of fact they were largely selected because they appeared to be of alimentary origin), we might calculate the deaths caused by the bovine bacillus as one-third of twenty, or, say, 7 per cent. of all deaths attributed to tuberculosis. This, for reasons given, was probably too high, and was, at best, only a very rough estimate. Yet, it was sufficient to show that quite a considerable number of deaths (about 3,800) were caused each year by this bacillus, and probably, therefore, by the consumption of tuberculous milk; at the same time, 93 per cent. of the mortality at all ages (or 50,000 deaths) wss caused by the human type of tubercle bacillus and came from patients suffering from that disease.

He did not agree with Dr. Cautley that the bovine and the human bacilli were nearly the same. Whether they had descended from a common ancestor was an academic question of no practical importance. One could not infect a calf with fatal (progressive) tuberculosis by any quantity of tubercle bacilli of the human type; whereas in a calf 50 mg. of bovine bacilli was invariably fatal. All the experiments which had been done with the view to showing the convertibility of one kind of bacillus into another, such as by the passage of the bovine bacillus through the chimpanzee, or the human bacillus through the calf, were negative or inconclusive. Where there was a positive result, it was found to be due to spontaneous infection occurring in the course of the experiments or to a mixture of types in the original virus. He believed that although the bovine bacillus was more virulent for the calf, pig, and goat than the human bacillus, it was probably less virulent for man. With regard to the Chairman's remark concerning Rabinowitch's experiment of putting bacilli into the stomach and finding them in the cervical glands, that experiment was open to criticism. It was difficult to get a gastric fistula to heal so completely that the possibility of bacilli entering through the imperfectly healed tissue was excluded. Some of Ravenel's experiments seemed to show the same sort of thing. And it was difficult to avoid infecting the track of the needle when doing subcutaneous injections. Moreover, when one put things into the stomach of an animal which had a gastric fistula, it was not a normal animal; and regurgitation might take place from the stomach to the mouth, and so cause lung infection down the trachea, especially in ruminants.

# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

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*VOLUME THE FOURTH*

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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1910-11

## CLINICAL SECTION

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The Council think it right to state that the Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W.

# Clinical Section.

October 14, 1910.

Mr. A. PEARCE GOULD, President of the Section, in the Chair.

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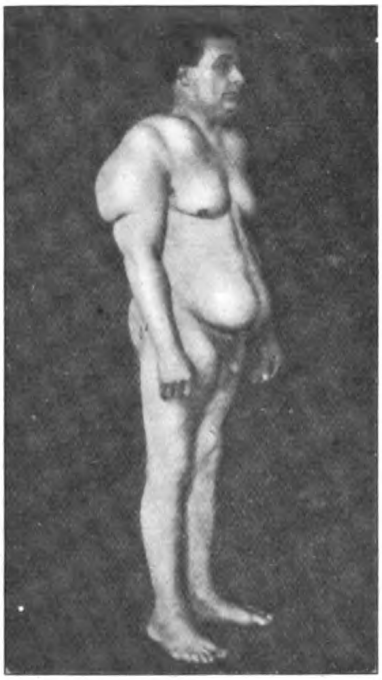
## Symmetrical Lipomatosis.

By H. D. ROLLESTON, M.D.

HANDY man, aged 45, drank freely fifteen years ago, but almost an abstainer since. No history of syphilis. Admitted for distension of the abdomen and some ascites which have since passed off. There are almost symmetrical fatty masses over the clavicles, neck, the shoulders, arms, elbows, the lower abdomen, sacral region, and the upper and inner aspects of the thighs; some of them are large and diffuse, others small and circumscribed. The veins over the chest and over the lipomas in the neighbourhood of the clavicles are dilated. The mammæ are considerably enlarged. Some of the large fatty masses appear to be diffuse, others to be composed of separate tumours which are becoming confluent. Except in one or two spots there is no tenderness; the tumours are not spontaneously painful, and there has not been any local pain before the appearance of the tumours. The condition, therefore, is not adiposis dolorosa or Dercum's syndrome. It approaches, but does not accurately correspond with, Lyon's group of "Diffuse symmetrical lipomatosis, with predilection for the neck."[1] The fatty mass about the left clavicle is larger than its fellow, and was the first to appear. Knee-jerks, normal; sensation, normal; pulse, 70; temperature, 97° F.; blood-pressure, 110 mm. Hg; urine, normal; weight on admission 13 st. 7 lb.,

[1] Lyon, *Arch. Intern. Med.*, Chicago, 1910, vi, p. 73.

now 11 st. 9½ lb. Dr. Allpress Simmons reports: "Screen examination shows a normal translucency of both lungs; the excursions of the diaphragm on both sides, even on deep inspiration, are not more than ½ in., and the arches do not flatten. Skiagram taken from the front shows some mottling of the inner half of the right lung towards the base. There is perhaps slight dilatation of the aorta, but no evidence of any intrathoracic tumour. Lateral skiagram of the neck does not show calcification." The formation of lipomas has been noticed for eight years.



Symmetrical lipomatosis. (Photograph by Dr. Allpress Simmons.)

Treatment: Has recently been on small doses of thyroid extract (1½ gr.), and has had X-rays to the right side of the body.

The case is shown in order to raise the question of the relation of the various forms of fatty overgrowth to Dercum's disease or adiposis dolorosa, and also of the explanation of the dilated veins over the chest. The appearance of the veins at once suggests intrathoracic pressure, but against this is the absence of any evidence of intrathoracic tumour and also of any displacement of the lungs such as might be due to a lipoma.

In addition, as Mr. A. Pearce Gould has pointed out, the blood flows towards the chest, not away from it, as would be the case if there were any intrathoracic obstruction. The question then arises, Is the venous formation part of an angiolipomatous growth? I am much indebted to Dr. Allpress Simmons for the accompanying photograph.

## Adiposis Dolorosa.

By ALBERT CARLESS, M.S.

C. H., FEMALE, aged 31, came under observation in March last for piles. She was admitted to hospital and operated on satisfactorily. She has been a lady's maid, and is always anæmic, with a poor circulation, fingers and hands readily becoming blue in cold weather. From time to time she had noticed that the tissues beneath her chin became somewhat swollen, but this did not last. At the time of operation she had a small fatty growth in the back of the neck in the suboccipital region, but it caused her no pain or inconvenience. Between the months of April and June a marked fatty development occurred, affecting mainly the shoulders, the back of the neck, the root of the neck, the back, and the front of the abdomen. These diffuse fatty masses have been decidedly painful and tender, and there has been some degree of neuralgic pain in the arms. The progress was very rapid up till June, but has been slower since. The most marked development has been around the shoulders and upper parts of the arms, and the disproportion between these regions and the parts below is very great. The periods have been regular and not specially painful, but the loss is not great; she missed one or two periods after the operation. The thyroid body appears to be atrophied. The skin acts well, especially the arms and hands. The patient generally feels languid and unfit for work.

She has taken thyroid tabloids and pituitary extract. The former seemed to do her good and control the increase in size, but worried her eyes somewhat; the latter had no effect. She has increased recently in weight by 5 lb.

Mr. Carless stated that he was a little doubtful as to whether he ought not to have placed a query before the title, and he would be glad to have the opinion of the Section as to whether or not this was a true case of adiposis dolorosa, as described by Dercum. The points of

interest were the rapid onset of the condition; the fact that the masses were tender on palpation and painful at night, the pain spreading round the body and along the arms; the absence or slight development of the thyroid body; and the fact that during the early development of the condition one or two periods were missed. Mentally she was somewhat changed, her memory having become defective, and she feels unfit for work, although anxious to get back to her duties.

## Adiposis Dolorosa?

By ALFRED M. GOSSAGE, M.D.

A WOMAN, aged 54, had always suffered with pains in the legs. Catamenia became irregular at the age of 44, and ceased at the age of 48. From the age of 44 she has become very stout, and the legs are now so painful that it is difficult for her to walk. Patient is obese and has ill-defined fatty swellings on the legs and thighs, which are painful and tender. Over the rest of the body the adipose tissue is evenly distributed, but there is general tenderness. The thyroid body can be felt. No mental impairment.

Dr. Gossage said he thought it would be of interest to show a case in which the pain was very great and the fatty tumours were very inconspicuous. The patient was obese, weighing over 14 st. She had suffered pains in her legs as long as she could remember, but it had been much worse during the last ten years. Ten years ago the periods began to be irregular, and after four years of irregularity had ceased. The increased pain might therefore be said to have commenced at the beginning of the menopause. At that time she began to get stout, and her weight had increased up to the present. Her movements were now carried out with great difficulty, owing to the pain in the lower limbs. The fat was evenly distributed over most of the body, but there were some very ill-defined swellings about the ankles, and just at the back above the knees, as also over the triceps and to a smaller extent on the inner side of the arm bordering on the axilla. There was general tenderness all over the body, especially on picking up the fatty tissue, but there was no tenderness on pressure directly over the nerve trunks. The case illustrated the fact that there might be much pain with increase of fatty tissue without the development of well-defined tumours,

and that the condition called adiposis dolorosa was an indefinite one, which tended to merge off on one side into ordinary obesity and on the other side into a condition very like that shown by Mr. Carless's patient.

## DISCUSSION.

The PRESIDENT (Mr. Pearce Gould) said that, in addition to the large fatty masses on the chest in Dr. Rolleston's case, the patient had sub-occipital lipomata, but none over the mastoid. There was slight double chin, but nothing great compared with the development of fat lower down. With regard to the veins, he thought the blood was running from the shoulder towards the sternal region; this would negative the view that it was due to pressure upon large veins in the upper mediastinum.

Dr. TURNEY remarked that reference had been made to variability of type in the condition, and he wished to refer in particular to two cases which had been under his observation. The first occurred nearly twenty years ago, when he was occupying a resident post at St. Thomas's Hospital. He received a letter from Bristol offering to send a girl, aged 15, who was suffering from acute myxœdema. She came up, and proved to be a very obese girl, weighing 15 st. There were no symmetrical tumours. The only sign of positive disease was an ulcer about half-way down the back of one thigh, and it was a question whether it was tuberculous or syphilitic. The ulcer soon cleared up under treatment by massage, hot water, and potassium iodide, with restricted carbohydrates in the diet. Under that régime she lost approximately 5 st. in weight, and then returned home. Within two years she came up again, having made up a good part of the weight. Five years after her first appearance—namely, when she was aged 20—she appeared again, weighing 20 st. Treatment was then given up. When seen at 15 years of age she was very lethargic but good-natured, and might be described as an ordinary girl grown very fat indeed. There was no pain, but it was with difficulty she could be got to take exercise. After the age of 20 she was lost sight of until, five years ago, he was much interested to recognize her in a case published by Dr. Hale White as adiposis dolorosa. She was still over 20 st. in weight, and, in the meantime, had developed pains which justified Dr. Hale White in giving her that title. That seemed to have been an excessive and almost physiological obesity developing into what was described by a first-class observer as adiposis dolorosa. Another case had been under his own observation within the last few months. A lady was operated upon for the removal of carcinoma of the breast one and a half years ago; she was seen in the early part of this year by Dr. A. E. Russell, and was complaining of severe pain in the lower ribs of the left side. The rib was found to be enlarged and locally thickened, and X-ray

examination confirmed the suggestion of carcinomatous deposit in that spot in the rib. He saw her four months later, and in the meantime she had gained considerably in weight, which was then 13 st. to 14 st. She had symmetrical lipomata, one 8 in. long and the other 10 in. or 11 in. long, on the loin on either side; another pair of lipomata on the back of the thigh, and smaller ones in other parts. The main feature was pain, which was appalling in its intensity. She had not had morphia when she came under his observation, but was taking large quantities of aspirin, phenacetin, &c., at very short intervals. He saw the patient at a nursing home, and the sister of that home, a very able woman, refused to be responsible for her, as she might commit suicide. The medical man under whom she had been in the country was inclined to regard the case as purely functional. He put her upon thyroid extract, regulated her diet, and gradually reduced the aspirin to 10 gr. every night. The pain was then much less but still severe, and the question was if this degree of pain was compatible with adiposis dolorosa. It seemed difficult to imagine it was carcinoma of the bones, with the patient gaining weight in that way and the pain being referred to all parts of the body. Seven or eight months had now passed since what appeared to be a local deposit of carcinoma was first observed, and yet there had been no development whatever in that direction. There was a third case, which seemed to point to a transition in another direction—namely, into a painful form of myxœdema. The patient was an elderly lady, whose sister was similarly affected, and who had gained weight very considerably after the menopause, without any symmetrical lipomata, but with scattered pains which persisted for years and to which he could give no definite basis at all. During the rest of her life she took thyroid extract, with great benefit, and her ultimate death was due to other causes. He thought the observations as to the variability and uncertainty of type made that evening were more than justified.

Dr. A. E. GARROD, F.R.S., expressed a doubt whether adiposis dolorosa was a definite morbid unit, and whether there were not, among cases of diffuse lipomatosis, cases of every grade, from those in which there was no pain to those in which severe pain was a very pronounced and distressing symptom.

The PRESIDENT said he thought he might add to Dr. Garrod's remarks that obese people, such as the patients, were often more sensitive on the surface than were thin people. Often, if one took hold of a stout person by the arm, he would wince and complain very much, whereas a thin person did not. Probably a minor degree of adiposis dolorosa was frequently seen.

Dr. F. PARKES WEBER said that in Dr. Rolleston's case he thought the signs were typical of diffuse lipomata. A good many such cases of diffuse lipomata had been shown before the Clinical Society, and he thought that they differed very much from those cases which were called "adiposis dolorosa." Adiposis dolorosa occurred chiefly in women, whereas in diffuse lipomata the patients

were almost all men, but he had shown one case of diffuse lipomata before the Clinical Society in which the patient was a woman.[1] Diffuse lipomata were probably the result of a combination of causes, but in most cases, whatever the other causes might be, alcohol seemed to have played a part. Alcohol was, however, certainly not the only cause, and was probably not even an absolutely essential factor. Whatever the actual causal factors might be which gave rise to diffuse lipomata in the male sex, it was just possible that similar factors, when acting in the female sex, might produce "adiposis dolorosa," or merely general obesity, as if sex itself, or something connected with the sexual organs, tended to give rise, in men to diffuse lipomata, in women to adiposis dolorosa.

Mr. CARLESS said Dr. Rolleston's case reminded him of one which he showed at the Clinical Section two years ago,[2] that of a man with symmetrical fatty tumours in the neck, under his chin, over his shoulders, and over his back, a photograph of which had been published. There was some, but not a very marked, history of alcoholism, and the man had no great aversion to work. He dissected out some of the fatty masses, and was interested to find that they were not truly diffuse, but that there was a definite margin, and they could be shelled out from the surrounding fat, though they had burrowed widely in it. This burrowing occurred in all directions, and the operations for removal were rather serious on this account—e.g., the masses in the neck extended deeply around and between the carotid vessels, but in all places a definite limitation of the masses was demonstrable. The man came up later with a fatty tumour over the episternal notch, and this in turn was submitted to operation. The superficial and upper parts were easily dealt with, but on the deeper aspect there were prolongations, perfectly well defined, running along the subclavian vessels on either side, and dipping deeply into the mediastinum. The patient had marked dilatation of the veins in the chest wall. He could not help feeling that in Dr. Rolleston's case mediastinal pressure from the presence of fat was the cause of the superficial venous engorgement. He did not consider Dr. Rolleston's case at all similar in type or causation to the one shown that evening by himself.

Dr. ROLLESTON, in reply to Dr. Parkes Weber, said that his case was not one of diffuse lipoma, but rather a case in which discrete tumours had united together and become confluent. The chief interest about these cases of fatty overgrowth was their relationship to adiposis dolorosa and to thyroid insufficiency. His own impression had always been that, just as there were some cases of exophthalmic goitre with an extraordinary degree of emaciation, there were some cases of myxœdema with an extreme degree of fatty accumulation. He believed that what was called adiposis dolorosa was only an

[1] F. P. Weber, "Diffuse Lipomatosis in a Woman," *Trans. Clin. Soc. Lond.*, 1904, xxxvii, p. 220.

[2] *Proceedings*, 1908, i, p. 233.

extreme aberrant form of hypothyroidism, and that all the other groups, such as circumscribed, diffuse, symmetrical, confluent, and multiple lipomas, were much more closely related together. The objection to this view was that one sometimes came across typical multiple fatty tumours which were very tender, and therefore suggested the transition to adiposis dolorosa.

Dr. GOSSAGE, in reply, said he would only wish to remark on Dr. Rolleston's reference as to "adiposis dolorosa" being an example of myxœdema. The point was how one was to make a diagnosis. Some cases of adiposis dolorosa improved markedly under thyroid treatment, but several of the cases which had been described as adiposis dolorosa did not improve under thyroid treatment. Whether that meant that they were not, properly speaking, cases of adiposis dolorosa he did not know. The patient now shown had not improved under thyroid treatment, but she probably more properly belonged to the class of painful general obesity.

## Two New Methods (Auditory and Visual) of Reading Arterial Blood-pressure.

By GEORGE OLIVER, M.D.

LAST June I made a preliminary communication to the Medical Section of this Society entitled "A Combination of the Auscultatory and Tactile Methods of Reading the Arterial Pressure (Systolic and Diastolic)."[1] In that paper I endeavoured to show that the reading of the pressures afforded by the finger for the systolic, and by the eye for the diastolic, pressure (as indicated by optimum oscillation) is rendered more definite and more accurate by bringing the ear also into play, the brachial artery just below the armlet being auscultated as originally suggested by Korotkow in 1905. I also advocated the employment of a small, air-tight tambour, furnished with a binaural tube and mounted on a stout band with an automatic buckle, by which the sound collector can be adjusted, like the armlet, without pressure. This arrangement has certain advantages over the application of the stethoscope by hand. It enables you to auscultate under a uniform condition and to avoid variability of pressure and alteration of position of the end-piece of the stethoscope when held *in situ*—variables which may vitiate the record; it also liberates the finger for palpation of the pulse. Moreover, the air-tight tambour seems to me to be more sensitive than the stethoscope.

[1] *Proceedings*, 1910, iii (Med. Sect.), p. 207.

In applying the armlet I place the tambour band around it so that both are passed on to the arm together. I then adjust the armlet to the upper arm and the tambour to the front of the elbow, just inside the tendon of the biceps, avoiding pressure, but adapting closely. I do not apply the armlet to the forearm, because the smaller arteries in that area frequently fail to afford the full auditory response to the compression of the armlet. I now place the binaural stethoscope attached to the rubber tube of the tambour *in situ* and connect the manometer with the filler and the armlet.

On raising the air-pressure you hear a "throb" or "thud" when the mercurial column reaches a certain point on the scale, and on further raising the pressure you note that the throb grows in intensity and in clearness; then it gradually diminishes in loudness, and finally ceases as definitely as when it began. Some observers (such as Ettinger) attach clinical importance to certain alterations or phases of the arterial throb as observed by the stethoscope, but I cannot say that I have been able to follow these phases through the medium of the tambour. It seems to me that such variations differ with a rising or falling pressure; and moreover, I doubt if they are sufficiently constant in the same subject to warrant our drawing any assured clinical inference. For example, I have detected a murmur stage with the falling pressure which was not apparent with the rising pressure and could not be again heard during the rest of the séance.

From the blood-pressure point of view you should with care determine at what pressure the throb begins and ceases; in other words, you should define precisely the pressure limits of the throbbing area. You will find that these limits are, as a rule, lower on the scale when determined by the slowly increasing pressure than by the slowly decreasing or release pressure, after you have overstepped by 20 mm. the point at which the throb ceases. I have failed with the auditory method to obtain any lower systolic readings by the release pressure, as are apparent in digital estimation. The limits of the throbbing area should therefore be defined by the direct or increasing pressure as well as by the now generally adopted release pressure, for the difference in the systolic pressure readings thus afforded may prove of clinical import in discovering arterial wall changes.

I shall now touch briefly on the interpretation of the pressure limits of the throbbing area. The reappearance on release after the extinction of the throb with the upward pressure signifies the systolic arterial pressure, and the reading thus afforded is more delicate than that

furnished by the finger, being, in the average of cases I have examined, about 7 mm. or so higher than the direct extinction digital reading and at least 15 mm. higher (and often rather more than this) than the return digital reading. Moreover, it is more definite, the parting line between throb and silence being quite sharp; and I have observed that in the same case a series of observers will frequently read quite alike, as several of you have done this evening, whereas digital estimation is open to considerable individual variation in determining the pressure in the same subject.

Does this auscultatory method help us to a more easy, definite, and accurate reading of the diastolic pressure than is afforded by optimum oscillation? I think it does. There has always been a doubt as to what the optimum oscillation signifies—whether the minimum or the mean arterial pressure. It is, nevertheless, accepted generally to indicate the diastolic pressure; but whether it signifies the minimum or the mean diastolic pressure, or the mean arterial pressure, we do not at present actually know. But whatever it denotes, if you halve the throbbing area you obtain a figure which, as a rule, coincides with the optimum oscillation. For example, if under the release pressure the throb reappears at 110 mm. and ceases at 60, the readings will be $\frac{85\ D.}{110\ S.}$—half the throbbing area being added to 60 or subtracted from 110, giving you 85 mm. as the diastolic reading as at present interpreted, this being 25 mm. lower than the systolic.

This mode of dealing with the figures furnishes data which are comparable with those of the manometric readings hitherto made, and they are more definitely reached than by the digital and visual method, for the upper and lower limits of the throbbing area are much more certain and decided. But those who have worked with the auscultatory method in reading blood-pressure are not in agreement as to the position of the diastole (or minimum arterial pressure) in the throbbing area. Ettinger, for example, believes it to be in the lower limit indicated by the cessation of throb on the release pressure, and Dr. Gittings, of Philadelphia, a recent worker, acquiesces in this interpretation.[1] I am disposed, also, to accept this location of the true diastole, and to regard the area of throb as furnishing three readings of the arterial pressure—namely, those of the minimum, the mean and the maximum arterial pressure.

[1] See "Auscultatory Blood-pressure Determinations—A Preliminary Report," by J. C. Gittings, M.D., *Arch. Intern. Med.*, Chicago, 1910, vi (August 15).

### The Visual Method.

I have lately found that the auditory apparatus is available for a visual reading of the systolic pressure. The two methods being equally sensitive, either method may be substituted for the other and may be employed for corroboration. The visual should also be a useful alternative method when the hearing is impaired or when noises disturb auscultation; it is also valuable for demonstration, as every one around can appreciate the reading, whereas the tactile and the auditory methods appeal only to the individual observer. The auditory method which I am suggesting may, however, be participated in by two observers at the same time, and each of them may listen either with one or both ears.

The apparatus of the visual method, as you see, consists of (1) the tambour, mounted on the strap and furnished with the auditory tube, but without the rubber ear-pieces; and (2) a coloured spirit indicator, fitted by the side of the manometer. At the end of the indicator tube, in which you see rings of coloured spirit, there is a bulb which serves two purposes—one being a reservoir of the spirit, and the other being an air-spring which amplifies the pulsation of the rings of spirit. The armlet may be adjusted above the elbow or to the forearm, just as the observer prefers; in both cases the tambour is buckled on to the front of the forearm in the mid-line, either just below the elbow, which is the best site when the armlet is placed on the upper part of the arm, or just below the armlet and above the wrist when this is adjusted to the forearm. The tambour should be strapped on with firm pressure, which develops the oscillation of the spirit in the indicator. Then, you see, I attach the rubber tube leading from the tambour to the connector of the spirit indicator, when the rings of spirit oscillate. Should you desire to have more motion you disconnect the rubber tube from the spirit indicator, and after further tightening of the tambour band you reconnect the tube. You see, on raising the air pressure in the armlet, that the oscillations of the spirit rings increase and become much sharper and more jerky in character; then you observe that the motion diminishes, until it finally ceases. You then raise the air-pressure some 20 mm. higher, and as you very gradually release the pressure you note the first distinct throb. This indicates the systolic reading. In this manner we obtain the pulsation of the limb rather than that of an individual artery; therefore this method is more trustworthy and more easy of application as an indicator of the cessation of the

circulation below the armlet than the appliances which are adjusted to an artery. You observe that in the cases in which we have applied this method to-night the reading of the systolic pressure is identical with that afforded by the auditory method; now and then, however, I have found that the visual is still more sensitive, affording a somewhat higher reading.

One very important condition is necessary to a reliable observation, and that is that the arm, throughout the observation, should be maintained in a flaccid condition and quite free from tremor or movement.

# Clinical Section.

November 11, 1910.

Sir A. PEARCE GOULD, K.C.V.O., President of the Section, in the Chair.

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## Case of Tabes with Lumbo-sacral Disease.

By E. FARQUHAR BUZZARD, M.D.

J. S., AGED 40, railway checker; has been married ten years and has one child. His wife is well; no other children, no miscarriages. When aged 32 patient had syphilis and gonorrhœa.

Six years ago: Unsteadiness when washing his face, shooting pains in legs, some sphincter trouble. Four years ago: Gastric crisis; has had two crises since that time. Three years ago: Numbness in calf of left leg and perforating ulcer on right foot. Seven months ago he noticed sharp pain in sacral region when he stooped; this pain has gradually become more marked, walking has become steadily worse, and three months ago he noticed a definite alteration in his manner of holding himself—he seemed always to be "stooping forward." One month ago he noticed definite "grinding" and "clicking" in the lower spine when he turned in bed.

Present condition: Marked lordosis, with palpable forward dislocation of the lumbar spine upon the sacrum; grating can be heard and felt in the region of the fifth lumbar vertebra and the right sacro-iliac synchondrosis when patient rotates the spine upon the pelvis; there is also some dislocation of the sacrum backwards—it appears almost flush with the posterior iliac spines. Argyll-Robertson pupils. Marked ataxia without loss of power in individual movements in both legs. Ulnar analgesia; marked sensory loss in root areas, L 5 and S 1, relative loss in

areas L 1, 2, 3, and 4. Much diminution of sense of position, and of deep pressure in lower extremities. Deep reflexes absent; epigastric reflexes present; abdominal and plantar reflexes absent. Difficulty in beginning micturition. A healed ulcer on outer border of the right sole.

Dr. BUZZARD added that the treatment of cases such as this was of some interest. Within the last year or so he had seen another case of tabes in which a very unusual gait was noticed, and in which he had found a severe form of arthropathy involving both hip-joints. Skiagrams showed that the head of the femur was practically absent in each joint, and that the man was walking about with a broken femoral neck grating against the iliac bone, and yet doing so without pain. By putting this patient to bed, withdrawing some fluid from each joint and applying extension, by means of weights, to both legs, he had succeeded in improving the condition of the diseased parts. An apparatus was then devised by which the weight of the body was transferred to the ankle without passing through the hip-joint, and, aided by this treatment, he was able to walk about quite well and return to his business. In the case before the Section that evening he did not think there would be so much difficulty to overcome, because it ought not to be a difficult matter to get the weight of the body transferred from the shoulders direct to the pelvis, and so taken off the vertebral column. If that were done, there did not seem any particular reason why the patient should not be able to regain his powers of walking.

## A Case of Malignant or Infective Endocarditis treated with an Autogenous Vaccine administered by the Mouth, showing the Disappearance of the Infecting Organisms from the Blood within Twelve Months from the Commencement of Treatment, together with marked Improvement in the Clinical Symptoms.

By ARTHUR LATHAM, M.D., and E. L. HUNT, D.P.H.

THE case now described appears to be a clear one of infective endocarditis of a subacute variety. The patient was under ordinary hospital treatment for seven weeks. During this time he steadily lost ground. Streptococci were isolated from the blood and a vaccine prepared and administered. Marked improvement immediately followed. The doses of vaccine were given in all instances but three by the mouth. The effect of hypodermic administration was tried for three consecutive doses, but the result from a clinical standpoint was unsatisfactory and

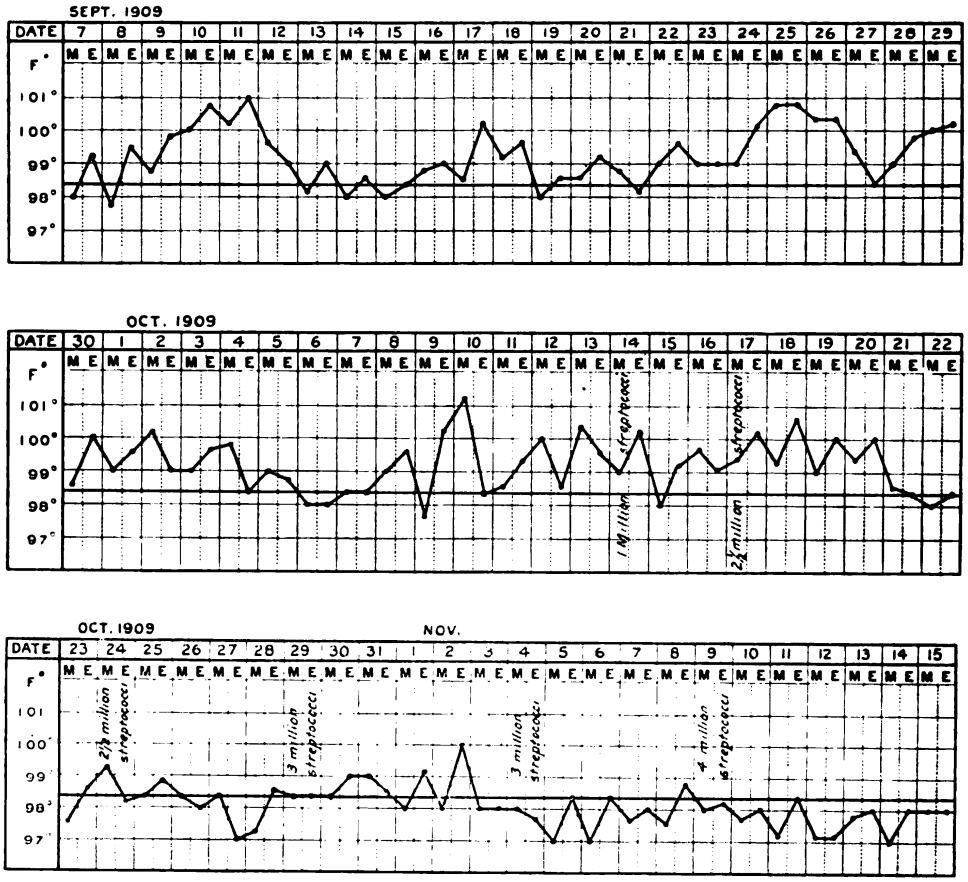
the oral method was resumed. The amount and frequency of the dose were determined on clinical grounds. At first it was necessary to give small doses, and only possible to increase them very gradually. During the last few months it has been possible to increase the dose more rapidly, and the improvement in the general condition and comfort of the patient has been marked. As streptococci are no longer present in the blood, the patient has been discharged from hospital.

G. A., male, aged 42, horsekeeper. Admitted to St. George's Hospital, August 24, 1909, with a history of having suffered for three or four months from exhaustion and from shooting pains in both legs. A month ago he took to his bed owing to shortness of breath, palpitation, and pain in legs. Has never suffered from rheumatism or syphilis. Appendicitis five years ago, but no operation. Teetotaller.

On admission: An anæmic, debilitated, but well-nourished individual. Complains of severe headache and pains in abdomen and limbs. Furred tongue. Many buried stumps in mouth. Pulse 80, very irregular and of collapsing character. Left pupil larger than right; no optic neuritis. Spleen not felt; liver apparently not enlarged. Other organs, with exception of heart, apparently normal. Urine normal. Heart: Apex-beat visible under fifth rib in nipple-line. Cardiac dullness, third left rib above nipple-line on left side and just inside right border of sternum. On admission the heart's action was feeble and irregular. There was a soft systolic murmur at the apex, but no diastolic aortic murmur was detected. Four days later an aortic diastolic murmur was present. The murmurs have varied from time to time, the diastolic murmur not being constant. An X-ray examination gave no evidence of aneurysm. The temperature on admission, and for the first fortnight, was 97° F. to 97·6° F. in the morning, and 99° F. to 99·4° F. at night. On September 10 and 11 the evening temperature was 101° F., and during the next three weeks it was usually about 100° F.

Course of the disease: The patient appeared to be making no progress during the first six weeks after his admission. He then came under the care of Dr. Latham. The blood was examined, and a particular strain of streptococci isolated and grown. A vaccine was prepared and has been used from October 14, 1909, to the present time. As the source of infection appeared to be in the teeth, the decayed ones were removed. One million of the patient's own streptococci were given by the mouth on October 14, and 2½ millions on October 17. On October 21 the temperature was normal, and it remained more or less

normal for seven weeks, during which time the dose of vaccine was increased to 5 millions and the patient allowed upon a couch. Subsequently the condition of the patient varied; a good deal of pain was complained of in the head and different parts of the body, and from time to time the evening temperature rose to 101° F. or 102° F. for a few days. The rise was usually associated with evidence of embolism.




Temperature chart of case of malignant endocarditis under vaccine treatment.

Thus on December 4 there was a painful swelling on the right temple; on December 17 there was embolism of one of the branches of the right anterior tibial, with blueness of big toe. On April 4 the patient lost power in right arm and leg and had transitory facial paralysis. In all cases the symptoms due to embolism cleared up completely. Gradually improvement set in, and this became more marked when it was possible to give larger doses of the vaccine. The highest dose of

vaccine reached amounted to 30 millions. At the present time, November, 1910, the temperature has now been normal or sub-normal for several months; the pulse is 60; and the heart's action is regular and much improved, although the murmurs persist. The general condition is good; the patient has put on a little over a stone in the last two months, and has been discharged from the hospital. As will be seen from the bacteriological account, the blood on the last three examinations has yielded no growth, and the leucocytic count, which was 23,000 at the beginning of treatment, is now within normal limits.

### Bacteriological Report.

Some 5 c.c. to 9 c.c. of blood were obtained from the patient by means of a venipuncture in October and November, 1909, and in January, March, April, and July of this year. Cultures made with the blood thus obtained yielded a similar organism on each of these occasions. In addition, during the same period of time, a few drops of blood were taken on four different occasions from the back of the terminal phalanx of one of the patient's fingers, and on two of these occasions cultures made therefrom yielded the same organism as found in those made from the blood obtained by venipuncture. On each of these eight occasions, when this organism was separated from the blood, it was submitted to various tests in order to ascertain whether the same organism was constantly present. This brings us up to July, 1910.

Three months later, examinations of the blood were made on October 12, 18, and 25, and on November 9, a few drops of blood from the finger being obtained on the first occasion and 9 c.c. from a vein on each of the last three. These four examinations failed to reveal the presence of organisms in the blood, the original tubes or flasks inoculated directly with the blood remaining sterile up to the sixth day, after which they were discarded.

During the time this case has been under observation six other cases of definite infective endocarditis have had a bacteriological examination of their blood made, and in each case an organism has been separated, in most instances on two or three occasions; the organisms found in these six cases all differed from the one under consideration.

In addition, during the same period, streptococci or pneumococci from some fifty to sixty different sources, such as abscesses, whitlows, sputum, empyemas, cases of pyæmia or puerperal septicæmia, &c., have

been examined, and though these different sources have yielded many different strains of streptococci or pneumococci, yet not one of them has agreed in its characters with that found in this case. In fact, this organism seems to have definite and distinct characters by which it can be certainly recognized; and hence we feel justified in saying that the vaccine administered was prepared from an organism constantly present in the blood of, and peculiar to, this case.

The following are some of the characters of this organism: It appears in the condensation fluid at the bottom of a nasgar or agar tube as a small coccus, occurring in twos and short chains and little groups. The individual organisms may be lanceolate or even bacillus-like in shape. It may be found in Jenner-stained specimens prepared from the broth-flasks inoculated directly with the patient's blood, in long chains of what look like tiny blue strepto-bacilli. The organism is Gram-positive, non-motile, and does not form spores. On ordinary culture media it grows badly, blood-nasgar or blood-agar being those on which it seems to thrive the best. It does not liquefy gelatine in which it grows at 37° C., and it will remain alive on this medium at 21° C. for six days, without, however, making any evident growth. It slowly reduces neutral red-agar. It clots milk in three to five days. It does not produce acid in salicin or mannite, but does so in inulin and raffinose, and in its behaviour to these four substances lies a distinctive feature of this organism when compared with other streptococci or pneumococci, or with organisms obtained from other cases of infective endocarditis that I have had occasion to examine, since on only one occasion have I met with a streptococcus that gave a similar reaction with these four substances, and that was one occurring in a sputum. In common with the great majority of the aforesaid organisms, however, it produces acid in lævulose, lactose, glucose, maltose, saecharose and galactose. (The litmus-broth tubes contained 2 per cent. of any one of the above substances and were sterilized by autoclaving.) On blood-nasgar or blood-agar its colonies are small, discrete, and more or less circular in shape, being like those sometimes of a streptococcus, sometimes of a pneumococcus. In broth it forms a fine, powdery, slightly stringy deposit, the supernatant fluid remaining clear. Flasks of broth inoculated with the patient's blood showed, after growth had taken place, a blackening of the red cells, but not much hæmolysis of them; this property was less noticeable on the last two or three occasions when the organism was found.

The patient had his first dose of vaccine on October 14, 1909, being given 1 million by the mouth. His serum, two days later, was found markedly to agglutinate his organism, a normal control serum not doing so.

A normal person, whose serum did not agglutinate this organism, took 5 millions of it by the mouth, but failed to agglutinate it within twenty-four or forty-eight hours. A further dose, however, of 10 millions by the mouth caused this individual's serum to agglutinate the organism within twelve hours of taking the latter dose. A second individual, whose serum did not agglutinate the organism, took one dose of 15 millions, by the mouth, with the result that his serum agglutinated it within forty-eight hours. This agglutinative power seems to pass off in from ten to fifteen days if no more doses of vaccine are taken. The fact that the patient agglutinated this organism after an oral dose of only 1 million points to the probability of his agglutinating the organism before the administration of his vaccine, a further proof of the specificity of the infection.

Mice inoculated with the living organism did not die from the effects thereof, neither could the organism be recovered from their blood or organs. Their serum failed to agglutinate the organism after their inoculation.

The patient's serum did not agglutinate a pneumococcus. An examination of the patient's blood on five different occasions yielded the following results:—

| Date | | Total white count | Polymorphs | Lymphocytes | Mononuclears | Eosinophiles | Mast |
|---|---|---|---|---|---|---|---|
| | | | per cent. | per cent. | per cent. | per cent. | per cent. |
| October 29, 1909 ... | 11.45 a.m. | 23,420 | 74·0 | 18·5 | 5·5 | 2·0 | 0 |
| November 27, 1909 ... | 3.0 p.m. | 12,060 | 75·0 | 16·0 | 4·5 | 4·0 | 0·5 |
| December 8, 1909 ... | 2.30 ,, | 11,720 | 79·5 | 15·5 | 3·5 | 1·5 | 0 |
| July 24, 1910 ... | 3.0 ,, | 8,920 | 81·5 | 16·0 | 1·0 | 0·5 | 1·0 |
| November 10, 1910 ... | 6.30 ,, | 10,900 | 54·0 | 40·0 | 3·0 | 2·0 | 1·0 |

## DISCUSSION.

Dr. JAMES GALLOWAY thought those who had had some experience of cases of infective endocarditis would feel anxious to congratulate Dr. Latham on having attained such a good result in the case reported. Individual experience of cases of infective endocarditis was rarely very large, but during the last two or three years six or eight cases of this disease had been under his care in

Charing Cross Hospital, in which micro-organisms had been obtained from the blood and cultivated outside the body. Streptococci, and organisms resembling streptococci, had usually been found present, but some of these streptococcus-like organisms had been found very difficult to identify. One remarkable case of infective gonococcal endocarditis had been among the number. In several cases autogenous vaccines had been prepared, and had been administered by hypodermic injection; he could not say, however, that much success had been attained by this treatment. One of the most instructive cases he had recently seen was that of a private patient, in whose case an early diagnosis had been made. A vaccine was prepared from the organism—a streptococcus found in the patient's blood—and at the same time a donkey was inoculated in order to prepare an anti-toxic serum. This work was very kindly carried out by the officials of the Lister Institute. The vaccine was used promptly, and on several occasions subsequently. The disease, however, which was of a fairly acute character, was not held in check. After many weeks a serum of considerable anti-toxic power was obtained and used for the patient. The effect of the serum in producing favourable symptoms, such as the lowering of the temperature and apparent temporary improvement in the patient's condition, seemed to be much greater than any good effects that could be observed following the use of the vaccine. The preparation of a serum is a slow process and difficult, and obviously can be carried out only in exceptional cases. The results in this case were certainly much more encouraging from the use of the serum than from the vaccine. There were two points on which he would like information from Dr. Latham: first, as to the method of administration of vaccines by the mouth, especially as to the time of the dose and its relation to food; the second point on which he would request information was as to the present condition of the patient's heart. Everyone recognized the difference in virulence in cases of infective endocarditis. Some were of extreme chronicity; others of the utmost virulence. In the days before complete bacteriological investigation, cases had been reported of recovery from infective endocarditis, without treatment either by vaccines or by serums. No doubt these cases would now be looked upon with a certain amount of suspicion from the point of view of diagnosis. But it must be felt by all that a very little would turn the scale in favour of recovery in cases of subacute and long-lasting infective endocarditis. The exact recognition of the micro-organism might be of assistance in prognosis, and the use of a vaccine or a serum prepared from these micro-organisms of very non-virulent character might be sufficient to influence the subacute infections favourably.

Dr. FRENCH said he had no experience of a similar case himself, but in the last number of the *Journal of the Royal Army Medical Corps*[1] there was an account, by Captain Emerson, of a case of severe infective endocarditis from which Major Harrison, R.A.M.C., cultivated a streptococcus which he described as being very similar to that obtained in rheumatic cases

[1] *Journ. Roy. Army Med. Corps*, 1910, xv, pp. 588-590.

by Drs. Poynton and Payne. The patient ran through a typical course of what appeared to be infective endocarditis, with bruits, both aortic and mitral. An autogenous vaccine was prepared, in the same way as Dr. Latham had described, but Captain Emerson gave it hypodermically. The result in that patient was as favourable as in Dr. Latham's. The bruits which had been present disappeared, except for a soft, systolic bruit in the mitral area.

Dr. LATHAM, in reply, said animals were not inoculated to see the virulence of the micro-organisms, but to determine the character of the organism. The case was one of subacute infective endocarditis. The patient had a temperature and was very ill, and, as he got worse for six weeks under under the ordinary hospital treatment, he was given vaccines. As soon as they were commenced there was no question about the improvement in the clinical condition. At the present time the mitral murmurs and the aortic diastolic were both very slight, so slight that one was likely to miss them altogether. The heart seemed to him to be rather smaller than it was when he first saw the patient, and the pulse was certainly much improved; that is, its collapsible character was not so marked, and, instead of being between 80 and 90, it was now 60 to 65. His impression, from what he had seen of cases of infective endocarditis, was that when one had to deal with a case of really acute infective endocarditis, vaccine therapy would not do very much. Therefore he was interested in hearing of the case narrated by Dr. French, in which, apparently, a case of acute infective endocarditis yielded to vaccines. He had the *a priori* idea that a vaccine would not do much good in the acute form, for the simple reason that rest of the affected part could not be secured, owing to the heart being constantly on the move; consequently there were bound to be a succession of auto-inoculations which hindered the action of the vaccines. With regard to the method of administration, he was not wedded to giving doses by the mouth; but in many cases one could do as much good in that way as by the hypodermic method, and the oral method was a convenience in some circumstances in hospitals, and especially for children. In his practice he had come across patients who did not improve when a vaccine was given by the hypodermic method, but had done well with oral administration. The same sort of thing happened in the administration of mercury for syphilis. There were cases in which one could not give mercury by injection with satisfactory results, nor intravenously, and yet satisfactory results occurred when the mercury was given by the mouth. With regard to the technique, he insisted on having the stomach as empty as possible. In order to secure that, he tried to get the patients to take a dose early in the morning, a full hour before food. He administered it in a 10 c.c. saline solution in the hope of getting some fluid as the vehicle which was more or less isotonic with the blood stream, and so increase the likelihood of it being absorbed by the stomach.

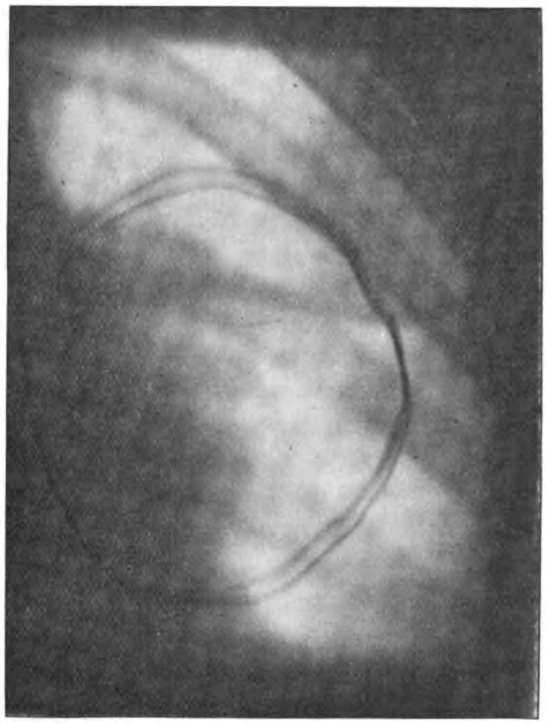
## A Pulsatile Swelling in the Third and Fourth Left Intercostal Spaces. ? Thoracic Aneurysm.

By HERBERT FRENCH, M.D.

E. H., MARRIED woman, aged 40, had been in perfect health until May, 1910. Her husband was apparently healthy. There had been one miscarriage, but no other pregnancy. She came to the out-patient department at Guy's Hospital on June 3, 1910, complaining that she had been seized with severe pain above the heart fourteen days previously, and that this pain since its onset had been constant. The condition is now much the same as it was then, except that under treat ment the pain has become less constant. When present it is always complained of in the region of the pulsatile swelling. There is a slight but definite prominence, pulsating synchronously with the heart-beats, occupying an almost circular area about 2 in. in diameter, most marked in the second, third, and fourth intercostal spaces, beginning immediately to the left of the sternum. There is an inconstant bruit systolic in time to be heard over it; there is an impairment of note over the pulsatile swelling, which impairment is continuous with that due to the heart itself; otherwise the cardiac physical signs are normal, there being no evidence of aortic or mitral valvular disease, and no increase in the size of the heart. The two radial pulses are equal and synchronous. There is no affection of either vocal cord; the pupils are equal and both react normally to light and to accommodation. The other systems seem to be normal and the general health of the patient is good. There is no evidence of syphilis in the patient herself; as regards the husband, the history on this point is not known.

Dr. A. C. Jordan's report as to the X-ray examination on June 3, 1910, was to the effect that "The heart is normal in size and shape. The arch of the aorta is only a little wider than normal from the front. There is an ill-defined, rounded shadow to be seen to the left of the left auricle, in the right anterior oblique position. There is moderate general dilatation of the aortic arch." Dr. Jordan's general impression at the time was that the condition was not one of aneurysm, on account of the very indefinite X-ray appearances. Clearly the aneurysm cannot be a large one filling up the mediastinum and coming forward through the chest-wall to the left of the middle line in the way that is sometimes

observed with huge aneurysms of the distal part of the arch, and my own view is that the condition is one of a small saccular aneurysm bulging from the left wall of the ascending thoracic aorta towards the left, coming into contact with the chest-wall in front of the left auricle and to the left of the pulmonary artery. In an X-ray picture taken by Dr. A. C. Jordan on November 4, 1910, the pulsatile tumour was demarcated on the front of the chest-wall by means of a metal wire, so as more clearly to bring out the slightness of the abnormal shadow shown by the X-rays in the position of the abnormal pulsation.



Shadow of tumour shown by X-rays.

## DISCUSSION.

Dr. FRENCH added that Dr. Rolleston had told him of an interesting case which was in St. George's Hospital in 1874-75, when Mr. Holmes had operated for what was regarded as an aortic aneurysm in a woman, aged 22, Brasdor's distal ligature operation being performed and seeming to cure the aneurysm. The patient was shown at the Clinical Society in the following year as a proof that it was a success.[1] Ten years afterwards the patient was in Oxford, where

[1] *Trans. Clin. Soc. Lond.*, 1876, ix, p. 11 ; 1877, x, p. 97.

she was very kindly looked after by Dr. William Collier, to whom she promised her heart post mortem. He dissected it out, and it was examined by Mr. Bull at St. George's Hospital, and the condition was then found to be not aortic aneurysm, although the clinical signs indicated it, but a congenital abnormality, in which there was pulmonary stenosis, and a large bulge in the pulmonary artery, distal to the stenosed valves, this bulge having produced the marked pulsatile dilation during life. He showed an illustration of this specimen in the *Transactions of the Clinical Society of London* for 1888.[1] He did not know whether the present was likely to be such a case, but he thought not; notwithstanding the indefinite X-ray signs, he felt sure it was a small saccular aneurysm of the first part of the aorta.

Dr. A. C. JORDAN said that from his point of view the case was a very puzzling one. He was accustomed, by X-ray examination, to find definite evidence when aneurysm was present, and so he looked with suspicion on any case where the X-ray findings were indefinite. It was true that a small aneurysm in the concavity of the arch escaped detection by X-rays; the view from the front was hidden by the shadow of the spine, while the oblique view, in the plane of the aortic arch, was concealed by the shadow of the arch. He had no experience of these aneurysms in the concavity of the arch except in conjunction with dilatation of the aortic arch. In Dr. French's case there was slight though definite general dilatation, and so there was some likelihood that the pulsating swelling under discussion was aneurysmal. He (Dr. Jordan) had looked through the records of all the cases of aneurysm which he had examined (many dozens of cases) and there was only one which was in any way comparable with the present case. In this case a small saccular aneurysm cast a very faint shadow, but the margins of the shadow were definitely rounded. The slight shadow cast by the pulsating swelling in Dr. French's case was irregular, and two prolongations extended outwards from it almost to the periphery of the lung. He showed slides of these two cases, and of three others bearing on the present case. If this were not an aneurysm, what was it? He thought it probably an inflammatory swelling, which was receiving pulsation from the aortic arch or from the pulmonary artery, probably connected with an inflammatory condition in the posterior mediastinum and the root of the left lung.

Dr. A. E. GARROD remarked that the murmur which was heard was not like the murmur of pulmonary stenosis; there was absence of the conspicuous valve shock and slamming second sound which is usually so pronounced in cases of pulmonary stenosis which had survived early childhood. The murmur was more like the bruit heard over an aneurysm, and the pulsation seemed to be of the expansile kind. If the signs were due to an inflammatory condition, as Dr. Jordan had suggested, it would be necessary to suppose that a collection of pus had an expansile pulsation communicated to it.

[1] *Trans. Clin. Soc. Lond.*, 1888, xxi, p. 146.

## Urgent Dyspnœa and Œdema of the Glottis in a Woman, aged 50, due to Hæmorrhage into the Thyroid.

By ARTHUR EVANS, M.S.

THE patient had had a large thyroid for many years; on the night of May 28, 1910, she suddenly developed dyspnœa. Dr. MacDowall, who was sent for, applied ice-packs to the neck, and by the morning the dyspnœa was somewhat relieved, but the thyroid was much increased in size. I saw the patient in the afternoon of May 29; she was then breathing with great difficulty, each inspiration being a mighty effort, accompanied with marked stridor. There was a large, rounded tumour of the thyroid, situated in the middle of the neck. It was exceedingly hard; no fluctuation could be detected in it; in this hard rounded swelling one could not differentiate the lobes. A glimpse with the laryngoscope showed the arytænoid region to be very œdematous. Under an anæsthetic given by Dr. Vivian Orr, I made a transverse curved incision across the neck over the whole extent of the tumour down to the infrahyoid muscles; these were stretched so tightly over the tumour that one could hardly get the flat of a scissors underneath. The muscles were cut across and a finger rapidly cleared the sides and upper margin of the tumour, but the dyspnœa was still as urgent. The finger now swept quickly round the lower margin and shelled out from beneath the sternum a large extension of the thyroid growth, with instantaneous relief to the breathing. This tumour was cut away, leaving a portion of the left lateral lobe of the thyroid behind. The recovery was uninterrupted.

The specimen shows a hæmatoma in the thyroid gland.

### DISCUSSION.

The PRESIDENT (Sir A. Pearce Gould) said he assumed that Mr. Evans drew a distinction between his case and hæmorrhage due to cysts. Cases like the present were very rare, in which the clinical symptoms were those of hæmorrhage or inflammation in the thyroid gland.

Dr. F. PARKES WEBER asked whether in Mr. Evans's case the hæmorrhage into the thyroid gland was followed by bruise-like discoloration of the skin over the front of the patient's chest. Three and a half years ago he (Dr.

Weber) showed before the Clinical Society of London[1] a man, aged 54, with arteriosclerosis and chronic interstitial nephritis, in whom sudden swelling in the region of the thyroid gland was accompanied by acute œdema of the pharynx and larynx, and was followed by discoloration of the skin of the upper front part of the chest, as if from extensive bruising. The swelling in the neck was undoubtedly due to hæmorrhage into or behind the right lobe of the thyroid gland, which gave rise to a condition which might be clinically termed "acute hæmorrhagic œdema" (of the neighbourhood). Just so in an arm or leg, extravasation of blood, owing to a bone-fracture or other traumatism, may give rise to a condition of "hæmorrhagic œdema" of the affected limb. The "hæmorrhagic œdema" in his (Dr. Weber's) case was, however, due to rupture of a diseased blood-vessel without any known traumatism. The pharynx was scarified, and the patient was relieved by a morphine injection, rest in bed, and the external application of ice to the neck; afterwards a calomel aperient was given. He recovered, but he (Dr. Weber) heard that he died of an apoplectiform seizure (cerebral hæmorrhage?) a little over nine months later.

## Painful Necrosis of Extremities.

By James Galloway, M.D.

Female, aged 67, showing necrosis of the tips of fingers. The index finger, left hand, and the second and third digits of the right hand are chiefly affected. The necrosis of the extremities has been preceded by, and is associated with, attacks of pallor and cyanosed flushing of the extremities both of the hands and feet. These attacks of pallor and congestion are associated with intense pain. The extremities tend to become congested when hanging down. This congestion is not associated with much pain; the spasmodic attacks of pallor and congestion are very painful. The condition has now lasted for about three years. At the present time the necrosis of the tips of the fingers has apparently ceased and the pain has almost disappeared. No definite necrosis of the toes has occurred, though the same condition of congestion has been plainly obvious in the feet as in the hands. There is well-marked evidence of widespread vascular degeneration. The arteries are firm and nodular. There is irregularity of the heart-beat, with evidence of myocardial degeneration. The patient has recently been admitted to Charing Cross Hospital on account of bronchitis.

[1] F. P. Weber, *Trans. Clin. Soc. Lond.*, 1907, xl, p. 270.

associated with an increase of cardiac inefficiency. It is to be noted that there are distinct evidences of syphilitic infection, shown by the scarring of the lower extremities. There is also the history of miscarriages in her early married life.

The case is shown as one of syphilitic arterial degeneration associated with the symptoms of painful vascular spasm, resembling Raynaud's disease.

## Morphœa affecting Right Frontal Region and Orbit.

By JAMES GALLOWAY, M.D.

THE patient, a female, aged 43, presented characteristic morphœa or localized sclerodermia, affecting the right frontal and vertical region; a small patch of sclerodermia was also noted on the right side of the nose at the junction of the ala nasi and cheek, and another small point on the right side of the lower lip at its junction with the skin. In addition the tissues of the orbit were affected, causing shrinking back of the eyeball (enophthalmos). The eyeball itself, with the exception of a certain degree of hypermetropia, is normal.[1]

The patient has been under observation since 1889, when a characteristic area of sclerodermia was noted in the area of distribution of the right supra-orbital nerve. This condition seems to have commenced eight years previous to this date at a point just above the eyebrow, and at another spot on the scalp 7 in. directly behind. The two areas had gradually coalesced till the full development of the condition, as now seen, took place. The supra-orbital area commences above the right eyebrow, widens as it passes backwards, then once more narrows towards the middle of the patch, widening again on the parietal region and disappearing as the lambdoid suture is approached. The narrowing of the mid-part of the sclerodermic patch is in relation with the upper terminal distribution of branches of the right auriculo-temporal nerve. The affected portions of the skin have the characteristic "old ivory" appearance and consistence of morphœa. The main area corresponds to the distribution of branches of the first division of the fifth, the patch at the lower end of the nostril is in the region of the second

[1] cf. "Enophthalmos," E. Treacher Collins, *Brit. Med. Journ.*, 1899, ii, p. 846.

division, while the spot on the lower lip is in the area of the third division.

The shrinking of the tissues of the orbit was scarcely noticeable when the patient was first seen, but has gradually advanced. The want of symmetry of the face produced by the shrinking and the consequent enophthalmos is now very noticeable. The patient has suffered from time to time, especially during the early stages of the development of the disease, from distressing neuralgia in the orbital and supra-orbital areas. Within the last few years there have been added symptoms of deafness with distressing tinnitus. The noises in the ears are severe

Case of morphœa with enophthalmos.

and very trying to the patient. It was at first suspected that this new development might have a relationship to sclerosis of the skin and orbital tissues, and be due to sclerosis of the mucous membrane of the tympanum, or of the bony tissues, and of the auditory nerve. On more careful examination the deafness and tinnitus are found to affect both ears and are sufficiently accounted for by slight chronic inflammatory conditions affecting the Eustachian tubes. There is no suggestion that the mucous membrane of the pharynx is affected by any sclerosing process resembling morphœa.

## A Case of Spondylitis Deformans.

By A. E. GARROD, M.D.

THE patient, a man aged 39, shows the characteristic features of spondylitis deformans. His spinal column is rigid throughout, and the movements of his head are limited owing to the implication of the cervical spine. There is conspicuous kyphosis. The ribs are immobile owing to ossification of the ligaments and fixation of the costo-vertebral joints. Respiration is wholly abdominal. Nerve-root pains have been present from time to time. There are no objective changes in the joints of the limbs. The movements of the hip-joints are not restricted, but the patient has complained of "rheumatism" in the shoulders for several years past. The condition of "poker back" has existed for seven years, and none of the accepted causes of the condition, such as injury or gonorrhœal arthritis, can be traced in this case. Some four months ago the symptoms of diabetes were observed, and he is at present under treatment on that account. Before he was dieted there was a daily output of some 140 grm. of sugar.

### DISCUSSION.

Dr. F. PARKES WEBER said that there were clinically cases of spondylitis deformans which might have the prefix "pseudo," just as gonorrhœal rheumatism of the joints used to be called a form of "pseudo-rheumatism." He believed that some of the cases of spondylitis deformans, or rather of "pseudo-spondylitis deformans" (especially some non-progressive cases), should be regarded as due to gonorrhœa, though he did not mean to say that that was the cause in the case shown by Dr. Garrod.

Dr. GALLOWAY said that it was satisfactory to find that Dr. Garrod had so clearly called attention to this condition. The important point to recollect was that the condition had very little to do with ordinary cases of so-called osteo-arthritis. He wished also to call attention to the severe pains produced by pressure on nerve roots, which such patients experienced. Recently a case had been under his observation suffering from spondylitis deformans. The man was feeble and emaciated, and suffered so much from pain in the central region of the abdomen that the diagnosis of malignant abdominal tumour was at one time suggested. The presence of spondylitis was subsequently proved. Was

it in Dr. Garrod's experience that the occurrence of these severe neuralgic pains, owing to nerve-root pressure, gave rise to difficulties in diagnosis such as that suggested by him (Dr. Galloway)?

Dr. FRENCH said Dr. Galloway had referred to a case in which emaciation was prominent. He (Dr. French) had that day seen a man, 60 years of age, with spondylitis deformans who looked remarkably fit. He believed that a healthy look was often a prominent feature of such cases, as it was also of osteo-arthritis, though the latter was probably a different disease. He asked what Dr. Garrod's opinion was as to the general condition of most patients suffering from spondylitis deformans.

Dr. GARROD, in reply, said that a year or two ago he had occasion to go through the published accounts of these cases. He had been surprised to find that little stress was laid, in most descriptions of spondylitis, upon nerve-root pains, whereas, in his own experience they were usually prominent symptoms. It was difficult to answer Dr. French's question without reference to notes, but his impression was that the subjects of the disease were usually thin men. There was no history of gonorrhœa in the present case. Poncet, of Lyons, had suggested that some cases of spondylitis deformans were tuberculous in origin.

## A Case of Reinfection with Syphilis after Five and a Half Years.

By A. MANUEL, M.B.

AUTHENTICATED cases of reinfection with syphilis are rare, and many authorities deny the possibility of such a contingency. So great an authority as Dr. F. W. Mott states in the Morison Lecture for 1909 that "we know the more prolonged duration of infectivity of the syphilitic virus as compared with other contagious diseases, also that one attack of syphilis confers immunity during the rest of the individual's life." The proof of a second attack of syphilis in recorded cases will not always bear such close scrutiny as will eliminate all sources of error, and recent advances in the methods available for the diagnosis of specific disease have rendered but little assistance in the investigation of this debatable question.

The following case has recently come under my notice, and, taking into consideration the past history of the patient and the progress of the present complaint, I am inclined to regard it as a genuine case of reinfection with syphilis.

F. B., aged 32, came up to the out-patient department at the French Hospital on September 15, suffering from a profuse gonorrhœal discharge and a definite circumscribed induration around the urethra, situated about ¼ in. from the meatus and extending ½ in. along the course of the canal. The glands in both groins were hard and swollen, and those in the axillæ were similarly affected, though to a less extent. I was struck with the resemblance of the local lesion of the penis to that of a primary chancre owing to its hardness, but the patient, an intelligent man, gave me a history of syphilitic infection early in 1905. In support of this statement I discovered, on examination, a scar on the corona glandis close to the attachment of the frænum, and I accordingly communicated with Dr. Gerald Ewen, of Twickenham, under whose care the patient had been for the past five years. I cannot do better than quote verbatim from Dr. Ewen's lucid report on the past medical history :—

"In January, 1905, the patient contracted a sore on the penis, which I have no doubt was syphilitic, both from its appearance at the time and the train of symptoms which followed. He had, later, a characteristic sore throat, but no secondary was ever noticed. As, however, he commenced treatment at an early date, this may have masked the rash. He also had induration and enlargement of the lymphatic glands and some falling of hair, and, later, developed onychia in a marked degree. He progressed satisfactorily under mercurial treatment by the mouth until February, 1906, when he developed symptoms of a tumour in the mediastinum, which I diagnosed as a gumma pressing on the superior vena cava and producing thrombosis. This was afterwards confirmed at St. Bartholomew's Hospital, where he was admitted as an in-patient under Dr. Morley Fletcher in April, 1906. His neck swelled up to a great size and remained so until a collateral circulation had been established; evidence of this can be seen at the present time in the presence of distended veins spread over the chest and abdomen. Potassium iodide was the only drug that had any effect on his condition, and it was given in increasing doses with marked success. This treatment was maintained for a long time afterwards, and the patient gradually improved in health. He subsequently remained well, with the exception of one or two mild attacks of gonorrhœa, until the onset of the present illness. On August 11 of this year the patient again came to consult me, and I then found that he was suffering from a urethral discharge of six weeks' duration, and a small pimple on the dorsal cutaneous surface of the prepuce; this latter developed a few

days later into an indolent soft sore, which was associated with a good deal of swelling of the prepuce. The ulceration responded readily to local treatment, and was practically healed on August 28, but the urethral discharge increased in severity at this time. On September 3 I first noticed the induration around the urethra, and the discharge had then become more profuse, and was, in addition, thick and shreddy in character. A week later, as far as I could see, there was an ulcer with irregular edges inside the urethra extending nearly to the meatus."

I saw the patient for the first time on September 15, as described above, and subsequently on October 3, on which occasion I was unable to discover any change in the condition of the urethra. He returned to the care of Dr. Ewen, and on October 11 a highly suspicious rash began to develop on his body. His serum, tested at this time by Wassermann's reaction, gave a pronounced positive result. On October 24 Dr. Ewen sent him to see me again, and I then found a typical secondary papulo-squamous syphilide involving the trunk and limbs, and a few discrete macules on the palmar surfaces of the hands. The spots, though not very numerous, were characteristic and chiefly distributed over the flexor aspect. Dr. Wilfrid Fox, of St. George's Hospital, confirmed this view. Dr. Kenneth Eckenstein, assistant pathologist to the Hospital for Diseases of the Heart, examined for the presence of the *Treponema pallidum* with the dark-ground condenser. Scrapings from the chancre, which were difficult to obtain owing to the situation of the lesion, failed to reveal the specific micro-organism, but a preparation made from a well-developed papule on the arm showed typical treponemata. The patient has received two intramuscular injections of atoxylate of mercury, and the rash is at present time fading under the effect of the drug.

The case, I think, presents several points of special interest. In the first place, assuming the present case to be a re-infection with syphilis, there is the marked difference in the secondary lesions as shown in the two attacks of the disease: in the former case the complete absence of any cutaneous lesion and the presence of characteristic ulceration of the fauces; and in the latter the presence of a typical secondary syphilide and the absence (up to the present time) of any faucial lesion.

Secondly, there is the early onset of tertiary lesions in the first attack in spite of continuous treatment by the mouth, symptoms of the mediastinal gumma appearing within thirteen months of the initial chancre. From the foregoing it might conceivably be deduced that the original infection was a severe one, or at any rate that the disease was

not efficiently controlled by oral treatment, and it is difficult to reconcile this view with the theory of re-infection occurring within six years.

It may be argued that the present syphilide is but a late secondary expression of the original infection in 1905, and that the presence of specific treponemata in the cutaneous lesions and of syphilitic antibody in the blood-serum are only what one might reasonably expect to find under the circumstances. Against this hypothesis is the fact that the patient remained entirely free from symptoms for a period of over four years; that the disease manifested a precocious tendency, as shown by the premature exhibition of tertiary lesions, which renders less probable after a long lapse of time the "revoking" of secondary phenomena; and, lastly, that there is at the present time an indurated lesion of the penis, which is more than suggestive of a primary chancre, and which was first noticed five weeks before the appearance of the secondary rash.

## Cases of Hastings Gilford's Form of Symptomatic Infantilism.

By H. Batty Shaw, M.D.

*Case I.*—C. H., aged 18, height 4 ft. 4½ in. (average, 5 ft. 1·95 in.), weight 4 st. 1½ lb. (average, 8·2 st.), belongs to a family of normal height and weight. Skiagrams show that the bony union of the pubis and ischium with the ilium, like a normal individual's, is not complete; but that the union of the great trochanter with the femur, unlike a normal person's at this age, is also incomplete. The patient is clever at needle-work, which she carries out at home, earning four shillings weekly. She refuses to "go to business" with her sisters, preferring to work at home. The delay of growth was first noticed at the third year of life. The expression of face and the manner of the patient are those of her years but not of her stature. She has never menstruated, and there is no trace of sexual development such as occurs at puberty. The mother had one miscarriage after the birth of this child. From the age of 3 years the patient suffered for some years with a swollen abdomen and very offensive motions.

*Case II.*—M. D., aged 27, height 4 ft. 6 in. (average, 5 ft. 2 in.), also belongs to a family the members of which are of normal height and weight. Skiagrams show that union of the epiphyses of the femur

and tibia is not yet complete; at her age they should be. She helps at home, but cannot do needlework. She made no progress at school, but has, since her school years, taught herself to read and write at home; she is unable to do responsible work, and has a bad memory for recent events. The teeth are defective and the palate arched. She was a six-months' child, and at the age of one year was smaller than her newly-born sister. The mother has had no miscarriages. As in the last case, her facial expression and manner generally are more those of a normal individual of her age than of a child of her height. She is not without a fair amount of intelligence, and enters freely into any discussion at home. She has always been very constipated, and up to 10 years of age slept eighteen hours out of the twenty-four daily; even now she sleeps in the daytime a good deal. She began to menstruate at the age of 18, but is not very regular. Though the breasts are not much developed, there is the usual development of hair met with at puberty.

## Case of Asexual Ateleiosis.

By Hastings Gilford, F.R.C.S.

T. L. S. is 113·5 cm. high, 30·38 kg. in weight. His height therefore corresponds with that which is usual between 6 and 7, and his weight with that which is usual at 10 years of age. He has been under observation for twelve years,[1] during which time he has grown 6·8 cm. and has increased in weight by 4·53 kg. His size, proportions, voice, dentition, physiognomy, and ossification are all indicative of a delay of development so pronounced as to be virtually an arrest. This delay began when he was between 1 and 2 years of age, and during the subsequent 35 years of his life his development has advanced to a point which, roughly speaking, corresponds with that normal at 6½ years. In other words, it has taken him thirty-five years to reach a stage of development which is ordinarily accomplished in five years. His head measures 49·5 cm. in circumference, and his intelligence is apparently of the juvenile order, tempered with a middle-age experience. His condition is one of ateleiosis as distinguished from symptomatic infantilism, for his delay of development is of extreme degree, is apparently spon-

[1] *Med.-Chir. Trans.*, Lond., 1903, lxxxv, p. 305.

taneous, cropping up without cause in a normal family, and his facial appearance is characteristic.

The ateleiosis is of the asexual variety, for he is cryptorchid, and there is complete absence of the secondary manifestations of sex. But though devoid of sex and decidedly childish in size, contours, and proportions, he bears upon his face and body superficial markings more

*a* *b*

*a*, Normal boy, aged 6; *b*, patient with ateleiosis, aged 28.

in keeping with an individual approaching the age of forty. Though of Brissaud's type, apart from the infantilism the cardinal symptoms of myxœdema are absent, for he is quick of comprehension, is in no way sluggish, has no pseudo-œdema, and is not unduly sensitive to cold.

## A Case of von Recklinghausen's Disease.

By CECIL ROWNTREE, F.R.C.S.

THIS patient, a man aged 45, has very numerous soft fibromata growing from the skin of the scalp, trunk, and limbs. The tumours, which are all of small size, do not appear to bear any anatomical relationship to the subcutaneous nerves. So far as the patient can remember, the condition commenced to develop some twenty-five years ago and has been steadily progressing ever since. On the outer surface of the right thigh the skin and subcutaneous tissues have become the seat of an enormous pendulous pachydermatocele. It is of interest to note that this is almost completely anæsthetic. In fact, the patient recently pinned a bandage to his tumour, and only discovered the accident two or three days later. There is much patchy pigmentation of the skin, particularly over the abdomen. No intra-abdominal tumours can be detected, and the patient is in good health and suffers no pain.

# Clinical Section.

December 9, 1910.

Sir A. PEARCE GOULD, K.C.V.O., President of the Section, in the Chair.

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## Case of "Addisonian Anæmia" (Idiopathic Pernicious Anæmia).

By WILLIAM HUNTER, M.D.

THE case shown is one fully recorded by the author in his work on "Pernicious Anæmia" (1901), and described in a paper before the Royal Medical and Chirurgical Society in January, 1901. It came under observation in July, 1900, when it showed all the typical features of this anæmic disease with 27 per cent. of red corpuscles and 35 per cent. of hæmoglobin. It was the first case treated by the author on the strict (oral) antiseptic principles combined with (anti-streptococcic) serum treatment which he then laid down. The recovery was immediate and very striking, the blood rising to 65 per cent. of corpuscles and 75 per cent. of hæmoglobin in the course of three weeks, and subsequently to 94 per cent. and 104 per cent. respectively at the time the case was shown and described before this Society.

The case has been kept under close observation ever since in order to see whether the removal of all sepsis at the outset could influence in any way the prognosis of the disease. The course, as is well known, is very often one of apparently good recovery, followed at intervals of three or four months' time by relapses, which ultimately prove fatal in a period varying from twelve months to two or three years after the first onset of the disease.

The subsequent history has been as follows: A considerable relapse occurred at the end of 1901, the blood corpuscles falling to 60 per cent., followed by a very rapid and good recovery to 92 per cent. early in 1902, then robust health till the end of 1902, when he had another relapse, this time to 50 per cent. Then again recovery early in 1903, not so

complete (up to 80 per cent.), although the patient appeared in robust health; this was followed at the end of 1903 by a much severer relapse, the corpuscles falling to 30 per cent., their original level in 1900, when first seen. This was followed by a very striking recovery in three months (up to 90 per cent. and 120 per cent. hæmoglobin), and the patient has remained without any further anæmic relapse during the last seven years. The blood now shows 105 per cent. red corpuscles, and 115 per cent. hæmoglobin.

The clinical features throughout, ushering in and accompanying these blood changes at every stage and in every relapse, have always been the same group described by the author as characteristic of this disease, viz. :—

(1) Glossitic, gastric, and intestinal symptoms.

(2) Hæmolytic changes in the urine with anæmic changes in the blood.

(3) Febrile disturbances.

(4) Peripheral nervous disturbances; paræsthesiæ of various kind and of very distressing character.

These features were very common during the first three years (1900-1903). During the last seven years they have all been absent.

## DISCUSSION.

Dr. DALTON said he would be glad if Dr. Hunter would give more enlightenment about the oral sepsis. Was it sepsis connected with the teeth or with the condition of the tongue? The reason he asked was that Dr. Hunter had always associated tooth sepsis with another form of severe anæmia, which he called septic anæmia, and which others were now calling aplastic anæmia. He asked whether any other treatment was adopted besides the antistreptococcic serum. Also, where did he think the sepsis originated? He thought the prognosis of the gastric cases was the best. In the last five years he had had two remarkable cases, which presented the typical blood-count; the patients got rapidly worse under the administration of arsenic, but under bismuth treatment they quickly improved. One patient when seen six months ago was going about fairly well. Another case was more recent, but the patient left the hospital much improved. Cases of pernicious anæmia following cancer of the stomach could not be expected to improve under any circumstances.

Dr. HUNTER, in reply, said the sepsis in this case was definitely present in the teeth; but the distinctive feature was the glossitis. The glossitis presented in this disease was not produced by oral sepsis of the ordinary type, of however severe a degree. There were a number of bad teeth, but they were removed

forthwith at the time the treatment was commenced. Since then the patient had been on the strictest oral antisepsis. For years the mouth and tongue had been swabbed out twice a day with carbolic lotion. When a tooth became bad it was removed, and no risks were run in that respect. Oral sepsis was the cause of a non-hæmolytic anæmia, which he called "Septic Anæmia," and that anæmia was frequently present, sometimes in an intense degree as a severe complication of Addisonian Infective Anæmia. He made it the first object of treatment to remove this septic anæmia. He did not allow any sepsis to come into contact with the glossitic or gastric lesions which were likely to recur. The word "pernicious" anæmia did not sufficiently connote Addison's "idiopathic" anæmia; he had therefore abandoned it and given the disease the title of "Addisonian Anæmia." The present case was the most favourable which he had had for fifteen years.

## Stokes-Adams Symptoms in a Lad aged 18.

By JAMES GALLOWAY, M.D., and W. J. FENTON, M.D.

THE patient is a fairly well developed lad, aged 18; there is no history of any serious illness till the month of May, 1910. He was then employed in an office in the City, and had passed through a hard winter's work. During the month of May he commenced to suffer from repeated partial fainting attacks, and for this reason medical advice was sought. When he came under observation the pulse frequency at the wrist varied from 32 to 40 per minute. Occasionally marked irregularity occurred, but the irregularity appeared to be always of the same type—two or three beats with long intervals, followed by a succession of beats with short intervals. The fainting attacks occurred with no warning—a slight exertion was often sufficient to bring them on. Occasionally he has lost consciousness for a very short time in these attacks, but usually they are transient and consciousness is not completely lost. On several occasions climbing to the top of an omnibus made him inclined to be faint. Rarely several fainting attacks have occurred in rapid succession.

There is no evidence of valvular lesion nor of cardiac enlargement or hypertrophy. No other visceral disease is present. Since the commencement of his attack the patient has rested, but the conditions described persist. Fainting attacks are less numerous. The sphygmographic and string galvanometer tracings[1] of the heart's action are shown, and give evidence of very distinct "heart-block."

[1] These observations have been kindly made by Dr. Thomas Lewis.

*Note by Dr. Thomas Lewis.*—The case is one of partial heart-block. The ratio of the auricular and ventricular rhythm is, as a rule, as 2 : 1; occasionally as 1 : 1. Some abortive ventricular contractions, the nature of which is not clear, are also present at times (fig. 1). During

FIG. 1.

Apex and radial curves, showing that no beats are dropped in transmission from heart to pulse.

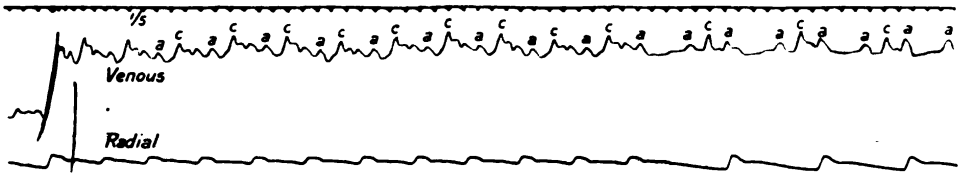



FIG. 2.

Venous and radial curves. Over the early period of the curve each ventricular contraction, *c*, is preceded by an auricular systole, *a*. At the end of the curve every second auricular impulse fails to reach the ventricle; *a* waves are twice as frequent as *c* waves. 2 : 1 heart-block is present.

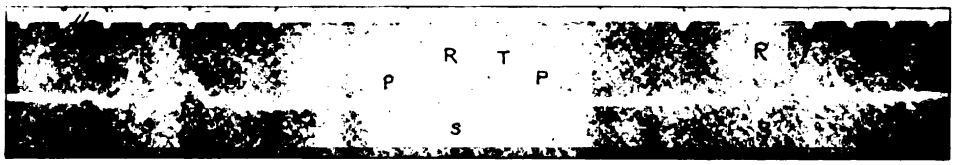



FIG. 3.

Electrocardiogram (from right arm and left leg). During a 2 : 1 heart-block phase. **P**, auricle; **R, S, T**, ventricle.

the 2 : 1 heart-block stage the auricular contraction following each ventricular beat is premature; this is a phenomenon not uncommonly encountered, but the meaning of it is as yet not fully understood. It will be observed that the early auricular variation (fig. 3) is of the same

form as that which succeeds it. They both arise in the same place—viz., the normal pace-maker of the heart.

Dr. Galloway added that when he saw the case with Dr. Barington Baker, the difficulty in diagnosis was in determining that the case was not one of epilepsy (*petit mal*). The attacks of swooning and the short periods of semi-consciousness resembled in many respects what might be expected in a case of *petit mal*, and it was only after careful consideration of the circumstances that epilepsy was excluded during the earlier clinical investigation of the case. The heart-block was not perfect under all circumstances, and occasionally the pulse-rate, instead of the regular thirty to forty beats per minute, could be counted at the wrist up to sixty or seventy. It was evidently of the utmost importance to make as definite a diagnosis as possible, and the case was investigated further. With the assistance of Dr. Fenton and of Dr. Thomas Lewis, the case was studied by means of cardiographic tracings and by the use of the string-galvanometer. A study of these tracings very definitely confirmed the diagnosis—namely, that the case was not one of minor epilepsy, but the unusual occurrence of "heart block" in a young man, suggesting a definite injury of the heart affecting the sino-ventricular band. There is complete absence of the history of any disease likely to cause injury of the heart. There were no previous illnesses of serious character, and no history of rheumatic fever. The result of the investigation had been that the patient was carefully treated by means of iodide of potassium, and it was an interesting commentary on the effects of this treatment that now the patient's heart was beating more regularly; the fainting attacks were less numerous and his condition was distinctly improved. It is to be noted, in addition, that about a fortnight ago, while under treatment by means of iodide of potassium, the lad had an attack of what appeared to be influenza. It was known that syphilis, in addition to the production of the more ordinary gummatous lesions, might bring about an endocardial syphilide, destroying the surface of the musculature rather than the actual thickness of the muscle substance. From the evidence obtainable no more than a suggestion could be made that the lesion producing the heart block in this patient's case was due to congenital syphilis, but the possibility of this cause had to be borne in mind in treating any such case.

DISCUSSION.

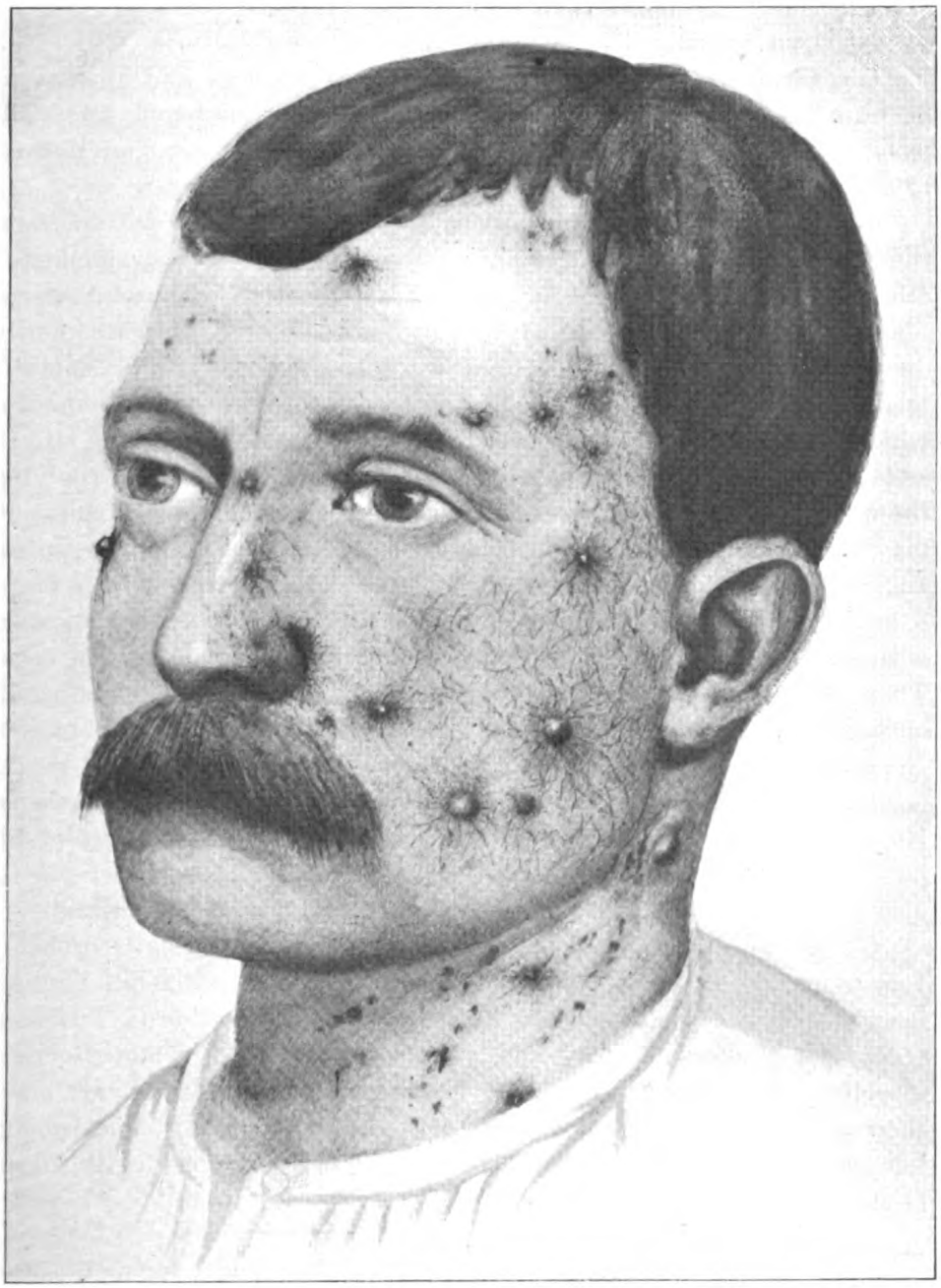
Dr. F. J. POYNTON said he hoped members would have an opportunity of seeing the case again later. He asked whether Dr. Galloway thought the patient would get well, or whether he would remain more or less an invalid. He supposed that a congenital syphilitic affection of the auriculo-ventricular bundle of His at the age of 18 would probably mean a more or less permanent lesion. One could hardly imagine that treatment would completely clear this up, so that from this point of view the prognosis would not be good. On the other hand, it was stated that the patient went through an attack of influenza, and that his heart beat was quicker after that than before—in fact, there had been some improvement. This improvement, in spite of influenza, fostered the hope that the prognosis might be more favourable than that on the hypothesis of congenital syphilis. He was led to hope this latter view might be the correct one, because there were undoubted cases of heart-block without demonstrable lesion of His's bundle. Our knowledge of the behaviour of His's bundle was as yet only elementary. He suggested that if His's bundle were implicated, it was a functional loss of conductivity.

Dr. GALLOWAY, in reply, said he would endeavour to bring the patient again on a future occasion. It was admittedly unusual to find so clear a case of this cardiac affection in so young a patient. The symptoms of heart-block occurred usually in elderly persons in whom distinct evidence of other cardio-vascular degeneration could be obtained. This patient's blood had not yet been examined to ascertain if the Wassermann reaction was present. He hoped, however, to be able to carry out this test. If the result were positive it would afford very considerable reason for carrying out an efficient course of mercurial treatment. On the whole, regarding the improvement in the symptoms and the condition of the patient, he felt inclined to regard the prognosis as a favourable one.

## Multiple Cutaneous Telangiectases of Recent Origin.

By JAMES GALLOWAY, M.D.

THE patient, a man aged 35, has been in the Army, and has served on the West Coast of Africa, in India, and in Burmah. In 1895 he had gonorrhœa, and no doubt syphilis, but received no regular treatment. The Wassermann reaction in his case is positive. He had repeated attacks of malaria in 1906 while in India, and suffered from enlarged liver and *fistula in ano*. In 1910 he was invalided out of the service on account of lung disease. There is now extensive consolidation of the right lung with evidences of a cavity at the apex. The temperature



Multiple cutaneous telangiectases. (From a water-colour sketch by Miss Mabel Green.)

ranges from 100° F. to 98° F., with occasional rises to 101° F. or 102° F. He has suffered severely from hæmoptysis; tubercle bacilli are present in his expectoration. There is no albuminuria or glycosuria.

The blood has been examined on several occasions and appears to be normal. On December 7 the red blood cells numbered 4,480,000 per cubic millimetre; hæmoglobin 100 per cent.; leucocytes are normal in numbers and in character. The blood coagulates normally.

About ten months ago he noticed the development of red spots on the skin. These occurred mainly on the face, neck and shoulders; others exist on the body, on the arms, and on the lower extremities. Many dozens may be counted. The lesions consist of permanently dilated capillaries, radiating from a central point—large "spider" telangiectases. The centre of each system has a dark purple punctum which tends to increase. In many cases they have increased in size so as to form an angioma, the size of a pea. The little artery supplying the angioma must be of considerable size, for distinct arterial pulsation may be felt on palpating the more developed lesions with distinct central angiomas. In some situations considerable areas of the skin, 2 in. or 3 in. in diameter, are thickly covered with thread-like telangiectases without the central elevated point, as on the right side of the neck. They bleed profusely when injured, and a group of two or three small ones at the edge of the left nostril gives much trouble for this reason. No telangiectases are seen on the mucous membranes of the buccal cavity, nasopharynx, or larynx. There is no hæmaturia or melæna. No history is obtainable of a similar condition in any member of his family. The patient himself does not appear to be hæmophilic, and he does not know of any member of his family who has bled unnaturally.

Dr. Galloway remarked that this form of telangiectasis is probably very unusual. In some respects it resembles the hereditary telangiectases of which cases have been described by Dr. Hawthorne, Professor Osler, Dr. Parkes Weber, and others. It probably more closely resembles the multiple superficial telangiectases which so rapidly make their appearance in certain cases of cirrhosis of the liver. The lesions, however, are much more extensive and more severe than in this type of superficial angioma.

## DISCUSSION.

Dr. F. PARKES WEBER said that he preferred the term "spider-angiomata" or "stellate angiomata" to "spider-nævi." He had seen similar angiomata in association with cirrhosis of the liver and in patients with a family history of

bleeding telangiectases, but he did not remember having ever felt such very striking pulsation in the little tumours before. In Dr. Galloway's patient there was evidently a dilated arterial (aneurysmal) nodule in the centre of each spider-angioma, which could be distinctly felt pulsating. He asked whether Dr. Galloway thought there was any local degeneration in the vessels to give rise to these stellate angiomata.

The PRESIDENT (Sir A. Pearce Gould) asked what Dr. Galloway proposed to do in order to get rid of the conditions. Would he use carbonic-acid snow?

Dr. GALLOWAY, in reply, said that there were several obvious causes of vascular degeneration present in this case—namely, syphilis, malaria and other causes leading to enlargement of the liver and spleen, and active tuberculosis. In reference to treatment, the patient had already experimented on himself with excellent results, having removed a troublesome one on the side of the face with one sweep of a sharp razor; but he did not think that any of his surgical colleagues would suggest that the exceedingly numerous lesions on the face and trunk should be treated in the same fashion. The difficulty in the way of treatment by excision or electrolysis was the possibility of severe hæmorrhage. Probably the application of solid carbon dioxide would be the most satisfactory and safest method to use.

## Case of Infantilism.

By H. E. SYMES-THOMPSON, M.D.

A. B., AGED 34, single; height, 3 ft. 2½ in.; weight, 3 st. Nothing abnormal noticed until the patient was between 3 and 4 years old, when she ceased to grow. She went to school until she was 14, and learnt to write, sew, and knit, but not to read. Her memory is good, and she knows the numerals and alphabet. She is babyish in her ways, and is fond of dolls. She prefers to associate with grown-up people rather than with children. She has lost the treble voice of childhood, and the face and hands show the furrows and lines of adult life. The circumference of her head is 20½ in. There is some kyphosis and scoliosis. The thyroid cannot be felt. The teeth are fairly good; the hair of the head is normal, but the mammæ are undeveloped, and there is no axillary or pubic hair. The case presents, therefore, a mixture of childish and adult characteristics. Skiagrams show a backward condition of ossification, the epiphyses of the long bones not being joined to the shafts, and the ossa innominata being incomplete. The family history presents nothing to note. The patient's general health is fair.

The bowels are regular and the motions normal. The case does not appear to be secondary to rickets, syphilis, or any other disease, and it apparently falls into the classification of Hastings Gilford[1] as an instance of primary infantilism, or ateleiosis.

Dr. PARKES WEBER said that he believed there had been only two cases of ateleiosis shown before the Royal Society of Medicine so far: one shown by Dr. Batty Shaw for Dr. Hastings Gilford at the last meeting,[2] and one which he himself showed last session,[3] of which he had brought photographs. His (Dr. Weber's) case was a little man aged 42, whose physical development roughly corresponded to that of a boy of ten years of age. Special features in Dr. Symes-Thompson's case were: (1) the presence of spinal scoliosis;

[1] *Med.-Chir. Trans.*, 1902, lxxxv, p. 305.
[2] *See* p. 34.
[3] F. P. Weber, *Proc. Roy. Soc. Med.*, 1910 (Child. Sect.), iii, p. 143.

(2) the fact that the thyroid gland could not be felt; (3) a certain degree of prognathism; (4) the patient's childish fondness for dolls. In his (Dr. Weber's) case there was also some scoliosis, and the thyroid gland could be hardly, if at all, felt.

## Case of Gumma of Brain.

By C. A. BALLANCE, M.S.

C. H., MALE, aged 26, was admitted to St. Thomas's Hospital on March 19, 1910. Had syphilis four years ago, and a brick fell on his head three years ago. He is a bricklayer by trade.

History of present illness: Twelve months ago he felt a numbness of the middle and ring fingers of the left hand, which was followed later by the sensation of pins and needles; he also had severe occipital headaches and pain in the neck. Nine months ago he commenced to have fits, which have continued, once a week, to the present time. During the fit, which lasts about twenty minutes, he is unconscious, passes his water, and is drowsy afterwards. At first the fits were accompanied with vomiting; now often no vomiting occurs. He knows when a fit is coming on, as the pins-and-needles sensation in the hand is marked and begins to travel up the arm. The aura lasts about one and a half minutes. The headaches recently have been less severe, but in the left ear there is a buzzing noise. No trouble with micturition.

On admission: A well-nourished man. Pupils normal; subsiding optic neuritis. Slight lateral nystagmus on looking to left. Slight weakness of left muscles of mastication; slight left facial palsy. Reflexes (limbs) increased on left side; plantar reflex flexor; abdominal reflexes normal. Intrinsic muscles of left hand and flexors of left wrist wasted. Patient can distinguish between heat and cold over the upper extremity. Over the palm, anterior surfaces of the fingers and the lower fourth of anterior surface of the forearm of the left upper extremity there is marked loss of tactile sensation.

The patient was treated with potassium iodide and mercury till April 28, 1910, but no improvement resulted; the fits continued. The fits commenced with the aura above described; this was followed by twitchings of the left fingers. These twitchings spread over the left side of the body and finally over the whole body. No tender point was detected on the cranium.

April 28, 1910: A quadrilateral opening in the right parietal bone was made.

May 5, 1910: The scalp flap was thrown down, and a corresponding dura flap cut. The inner aspect of the dura was fused with the arachnoid and pia, and, on cutting this away, a mass of putty-like material was exposed, extending into the substance of the brain behind the Rolandic fissure. The putty-like material was lifted out with a spoon and scoop. The cavity in the brain extended forward under the Rolandic fissure for about 1 in. The putty-like material measured about $\frac{3}{4}$. The patient made an uninterrupted recovery. The intrinsic muscles of the left hand are still wasted.

On November 19, 1910, a plate made of an alloy of platinum and iridium was fixed by platinum wire to the opening on the skull so as to close it.

## Aneurysm of Aortic Arch, occupying the position of a Subclavian Artery.

By C. A. BALLANCE, M.S.

MALE, aged 36, hall porter, was admitted to St. Thomas's Hospital on October 18, 1910. Two years ago he had an accident in a lift and a blow on left shoulder. He denies syphilis. Three weeks ago patient had aching pain in the left breast, the back of the neck, and left arm. The voice, too, became somewhat husky.

On admission a pulsating swelling was noticed above the inner extremity of the left clavicle. The pulses are equal; the left pupil is smaller than the right; the left vocal cord is immobile. The X-ray picture clearly shows the aneurysm to be of the aortic arch. Since the administration of potassium iodide the swelling has greatly decreased in size.

## Two Cases of Henoch's Purpura.

By W. ESSEX WYNTER, M.D.

*Case I.*—F. C., AGED 11, admitted September 26, 1910. Rheumatism when aged 4; no other illness. Pain in abdomen for one week, independent of food; for four days pain, swelling, and stiffness in left wrist; purpuric spots appeared on leg at commencement of illness, and on

admission extended to all the limbs. Systematic examination disclosed no abnormality of organs; splenic dullness extended to costal margin, but the edge could not be felt. Pain was complained of in the epigastric and umbilical regions, and there was some general abdominal tenderness. The patient vomited on the day after admission, some blood being present in the vomited matter. On October 1 there was considerable intestinal hæmorrhage, and this recurred on October 4. On October 15 a fresh crop of purpuric spots appeared on the right foot. On October 24, symptoms having subsided, the patient was allowed to get up, but on October 28 fresh purpuric spots appeared on the legs and there was some œdema of left foot. On November 7, after getting up for some days, fresh purpuric spots appeared on the inner side of the left ankle, and on the following day blood and albumin appeared in the urine (12 grm. per litre). Microscopically blood corpuscles were seen, but no tube casts; no globulin was present; no œdema. The albumin has gradually diminished, but is still present and varies in amount. Weight, pulse-rate, temperature, respiration, quantity and specific gravity of urine and blood, showed no departure from normal. Throughout there was marked pallor of the face, the lips remaining red.

*Case II.*—S. N., aged 13, admitted October 19, 1910. A similar illness occurred two years before. Five days before admission pains were felt in the legs and purpuric spots appeared. Patient vomited the day before admission. When first seen there was abdominal pain and a purpuric eruption on legs and feet; the ankles swelled. Systematic examination disclosed no abnormality of organs; splenic dullness extended to costal margin, but the edge could not be felt. Symptoms subsided in three days and the patient was allowed to get up on October 28. November 7: Fresh purpuric eruption on right leg and left elbow. November 8: Blood and albumin in the urine; corpuscles and blood-casts seen in deposit, but no epithelial casts; no œdema; several attacks of vomiting occurred. November 24: Intestinal hæmorrhage. Pulse and respiration rate, temperature, quantity of urine, and body-weight remained normal. Blood-examination showed 19,000 leucocytes, red cells 4,800,000, and 65 per cent. hæmoglobin.

## DISCUSSION.

Dr. F. DE HAVILLAND HALL said the difficulty in cases where there were marked abdominal crises was to differentiate them from cases of some more severe lesion of the bowel, such as intussusception. In one case at

Westminster Hospital which was diagnosed as Henoch's purpura, the child died, and the post-mortem showed there was an intussusception. Dr. Wynter spoke of the use of calcium lactate for the relief of the hæmorrhage in those cases. An old-fashioned remedy which he had found very useful was oil of turpentine.

Dr. GALLOWAY said that the explanation of such cases of purpura must be very difficult. The most remarkable example of this condition had come under his observation at the Great Northern Central Hospital. The child came in three successive Septembers with the symptoms described by Dr. Wynter—albuminuria, hæmaturia, melæna, and purpura. The attack usually lasted about a month. On inquiry it was found that on these occasions the child had been sent to the country in the nutting season, and had naturally eaten as many nuts and blackberries as she could lay her hands on. The intestinal trouble and the purpuric state followed, and she was brought to the hospital. He questioned whether it was wise to isolate this variety of purpura and give it a special name, and asked whether Dr. Wynter could say whether an attack of intestinal disturbance had preceded the disease in the cases which he had just shown.

Dr. WYNTER expressed his approval of the recognition of distinct types of purpura—such as Henoch's—as being likely to lead to more exactitude in classification and possibly in treatment. Benefit had resulted in these cases from administration of calcium lactate. Close inquiry had failed to discover any change in diet or mode of life to which the attacks could be attributed.

## Case of Perforated Tuberculous Ulcer of Ileum.

By LIONEL E. C. NORBURY, F.R.C.S.

E. G., MALE, aged 39. History of occasional attacks of epigastric pain; no history of constipation. Admitted with eight hours' history of acute abdominal pain, chiefly lower half of abdomen; patient doubled up; vomited later.

On examination: Temperature 100° F., pulse 100 per minute, respiration 20; tenderness and rigidity of abdomen, chiefly lower half; liver dullness normal.

Operation nine hours after acute onset: Exploratory cœliotomy—no free gas; small amount of free fluid in abdominal cavity, and lymph; stomach and appendix normal; hard swelling found involving small intestine 2 ft. from cæcum; lumen of bowel much narrowed; small perforation in wall of bowel at this situation; resection of 4 in. of ileum with ulcer; end-to-end anastomosis; dry sponging of pelvic cavity;

suture of parietes; no drainage. Healing *per primam;* uninterrupted recovery.

Microscopical examination proved ulcer to be "tuberculous." Examination at operation showed no other ulcers in small intestine.

## Varix of the Right Superficial Epigastric Vein.

By LAWRIE MCGAVIN, F.R.C.S.

T. P., AGED 52. Patient states that in 1901, when jumping overboard to save a man, he strained himself. He suffered from severe pain in the stomach at the time, which "doubled him up." The veins on the abdomen became enlarged after this, and have been increasing in size since. Patient now shows well-marked varix of the superficial epigastric vein of the right side. The vein is extremely tortuous, and presents lateral dilatation and pouching of the wall, especially in the region just above the umbilicus. The condition may possibly have been brought about by rupture of the vessel wall, with consequent thrombosis.

### DISCUSSION.

Dr. DALTON asked whether it was possible to detect in which direction the blood was flowing in the epigastric vein.

Dr. PARKES WEBER believed the venous enlargement must be compensatory. In the case of nearly all enlarged veins in front of the abdomen the enlargement was compensatory, either to internal venous thrombosis or to cirrhosis of the liver. Traumatism was a recognized cause of venous thrombosis of the abdomen. When he was at Cambridge, about 1884, he remembered that an athletic man, who had been practising jumping, was attacked with venous thrombosis, which spread upwards so as ultimately apparently to involve the inferior vena cava. The resulting dilatation of veins in the front of the abdomen was enormous, and, of course, of a compensatory nature. Except for the varicose veins resulting from the blockage, this man recovered completely, and died in 1909 from a totally different disease (an acute infection). In 1903 Dr. Weber had to examine a man, aged 28½, for life assurance. The superficial veins of his lower extremities and the lower part of his trunk were enormously dilated, and this dilatation had followed venous thrombosis (apparently involving the inferior vena cava) after a carriage accident five years previously. The life was accepted for assurance at an extra rating.

Dr. HERTZ said that the danger of injury or inflammation of enlarged veins such as were present in Mr. McGavin's case could not be great. Two years ago

a man, aged 64, came under his care at Guy's with enormously distended and tortuous veins over the chest and abdomen, in which the blood flowed in a downward direction. These had been present, without undergoing any material change, ever since 1891, when he was in the hospital under Dr. Goodhart. At that time he gave a history of having had syphilis twenty years earlier. Three months before admission his left arm and the right side of his face had suddenly become swollen, blue, and painful. The swelling of the arm gradually subsided, and that of the veins gradually increased, and paralysis of the left vocal cord appeared. A diagnosis of gummatous mediastinitis, with thrombosis of the inferior vena cava, was made by Dr. Goodhart. Except for occasional attacks of pain and dyspnœa, he remained fairly well for nineteen years, although, as a flower-seller, he had been exposed to very inclement weather, and had often had insufficient food. After a short stay in the hospital he left, feeling quite well, having lost the bronchitis on account of which he had sought admission.

Mr. MCGAVIN, in reply, said the blood was flowing from above and below towards the centre of the mass, towards the greatest prominence of the tumour. There was no history of the patient having suffered from any abnormal abdominal condition at the time of the accident. At the present time, however, he had a very slight enlargement of the liver, and very marked enlargement of the spleen, this organ extending nearly to the umbilicus. There was not, nor had there ever been, any ascites or œdema of the legs and ankles. Albumin was not found in the urine. The direction of the circulation seemed to suggest portal obstruction as the cause of the swelling; but the absence of other symptoms, the spider-like distribution of the veins above the umbilicus, the long history of the case, and its association with trauma, pointed to its being of the nature of a large venous angioma; and this is further borne out by the stationary character of the tumour.

## Trunk Lesion of the Fifth and Sixth Nerves; Keloid Development in Scars.

By LAWRIE MCGAVIN, F.R.C.S.

L. W., AGED 6. This patient was admitted into hospital on May 13, 1910, and, as a result of being run over by a cart, was suffering from a wound of the face and dislocated left clavicle. The wounds were cleaned up and sutured, and the clavicle put into position. It was noticed that there was paralysis of all the nerves of the arm, with the exception of the ulnar. It was thought at the time that this was due to pressure from effused blood, but, as the condition did not clear up, a flap was turned back from the shoulder and the clavicle exposed (June 9).

The outer end of the clavicle had become depressed and was producing pressure. This was lifted up and the fractured ends were wired. The patient was discharged on June 23. The wound had healed perfectly, and the paralysis was apparently clearing up.

Returning to hospital a week ago—i.e., six months after—it was found that every scar had become keloid in character, both those produced at the time of the accident and those subsequently by operation. The patient also presents a complete clinical picture pointing to a trunk lesion of the fifth and sixth cervical nerves.

Mr. McGAVIN added that Dr. Gordon Holmes had examined the man for him, and suggested that the lesion of the fifth and sixth trunks was probably as high as the intervertebral foramina. His own impression was that it was a solution of continuity in the axis cylinders. He would be glad to know whether it was advisable to operate again. He did not think anything was to be gained by it, and he felt rather hopeless about the patient.

## Double Proptosis due to a Growth, Lymphoma (Hæmangio-lymphadenoma), invading each Orbit.

By L. VERNON CARGILL, F.R.C.S.

A. A., MALE, aged 20, a sailor and native of Barbadoes, now an in-patient of King's College Hospital. Family history unimportant. General health always good. Sore on penis two years ago.

Last June his attention was first drawn to a painless swelling under the nasal half of the upper lid of the right eye. He went to the Dreadnought Hospital in July, and there was then proptosis of both eyes, but more marked on the right side. There was a bulging forward of both upper eyelids caused by a soft, non-pulsating swelling beneath, situated in the upper and inner part of each orbit. The ocular movements were slightly restricted in all directions, but more particularly upwards, but there was no ocular paralysis and no diplopia. The optic disks were normal; there was no lesion to be seen in either fundus; the pupils were normal, as were the visual acuity and visual fields. There was no evidence of any of the cranial nerves being affected.

At the end of July my colleague, Mr. R. E. Bickerton, removed a small portion of the growth beneath the right upper eyelid for examination. Photographs were taken on August 11, which show the conditions then present. In them the right eyelid, which had been recently

incised for the removal of a portion of the growth, is drooping. The bulging of the eyes and the orbital swellings have since then gradually increased and been accompanied by some occasional pain at night between the eyebrows, over the root of the nose, and in the temples. His proptosis is now so extreme, especially on the left side, that he is unable to close his eyelids properly, and epiphora has become troublesome and constant. The movements have become more limited, the tumours have increased and extended further round on the nasal sides of each orbit, and the eyes are displaced downwards and are further apart, so that the distance between the pupils is as much as 78 mm. The caruncle and plica semilunaris on each side are swollen, chemosed, and injected. A swelling has appeared in the forehead, chiefly over the region of the left frontal sinus, and extending to the upper margin of the left orbit, which is tender, feels hot, and pits on pressure, the bone beneath feeling raised. This shows slightly in full-face photograph. Some enlarged glands are to be felt on both sides of the neck, and there is a soft, glandular-like swelling under the tongue. Eyes and vision still remain normal. There is no loss of smell.

Dr. StClair Thomson has kindly examined the nose and sinuses, and reports as follows: "The nose and post-nasal space are quite free and healthy. There is no stenosis, pus, or new growth in any of these spaces. Transillumination shows both maxillary sinuses equally translucent. There is tenderness over both frontal sinuses; more over left, where there is slight œdema. The growth might be primary in the frontal sinuses."

The skiagrams, which have been taken at the Dreadnought Hospital and King's College Hospital, give no information.

There is nothing further abnormal to be felt or detected in the chest, abdomen, or elsewhere.

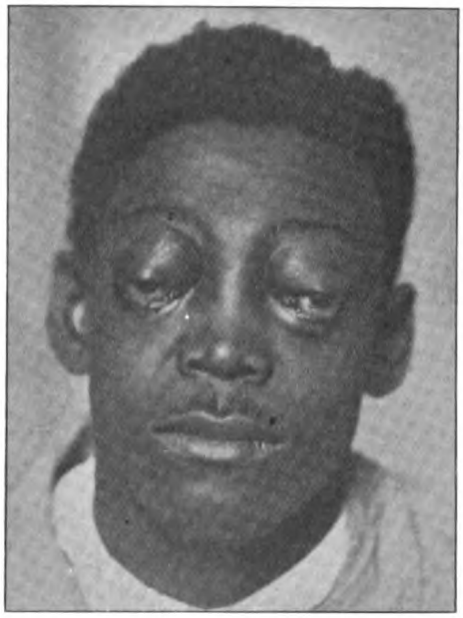
The blood examination gave: "Red-blood corpuscles, 4,430,000; white-blood corpuscles, 9,000; hæmoglobin, 75 per cent.; polymorphs, 31 per cent.; eosinophiles, 9 per cent.; monomorphs, 55 per cent.; hyaline bodies, 5 per cent. Very numerous platelets." His colour precludes any note being added as to his complexion.

A few days ago I removed a portion of the growth from the left orbit, sections of which have been examined by Dr. Emery. They show the structure to be that of a hæmangio-lymphadenoma, consisting of young connective tissue with the formation of definite lymphatic follicles around the blood-vessels, the growth having started in the perivascular lymphatics. The sections of the first portion removed by

Mr. Bickerton were first regarded as round-celled sarcoma, but they show the same structure in an earlier stage. [Sections shown.]

A. Q. Silcock, in 1888, showed a case [1] of a child, aged 9, with a tumour affecting both orbits. The microscopical examination was said to present the characters of round-celled sarcoma, but the same mistake might have been made in that case as in the early sections from this.

Mr. Treacher Collins [2] described the case of a child, aged $1\frac{3}{4}$ years, which had separate tumours in the two orbits. Death ensued; and



Hæmangio-lymphadenoma of the orbits.

microscopical examination showed them to resemble lymphatic-gland tissue, and there were deposits of a similar character, which had not been discovered during life, in most of the organs of the body. There was no enlargement of the external lymphatic glands, although those of the chest and abdomen were extensively involved. He referred to five similar cases in the literature, occurring at the ages respectively of 70, 57, 48, 33, and $4\frac{1}{2}$ years, in addition to Silcock's case alluded to above.

[1] *Trans. Ophth. Soc. U.K.*, 1888, viii, p. 53.

[2] *Ophth. Hosp. Reports*, 1890-91, xiii, p. 248.

# A Method for Determining the Absolute Pressure of the Cerebrospinal Fluid.

By M. A. CASSIDY, M.D., and C. M. PAGE, M.S.

SINCE Quincke in 1891 first introduced the procedure of lumbar puncture, the literature relating to the subject has become voluminous. The therapeutic value of the operation has been variously appraised, the occasional risks attaching to it have been realized, and exhaustive researches into the chemical, physical, and cytological properties of the cerebrospinal fluid have been carried out. On the other hand, comparatively little attention has been directed to the pressure in the spinal sub-arachnoid space, and discordant observations have been recorded by different investigators; for example, all sorts of figures have been accepted as the *normal* intrathecal pressure, the extremes being 40 mm. and 476 mm. of water! This failure to obtain comparable readings is to be attributed in part to the different types of apparatus employed, and in part to a neglect of the factors which normally influence the cerebrospinal pressure. Of these factors the most important are firstly, the effect of gravity, and, secondly, the influence of venous back-pressure. In our own experience we have frequently noticed a difference in the spinal pressure of about 30 cm. of water, according to whether the patient was in the sitting, or in the recumbent, position; moreover, the least constriction of the veins of the neck can be shown to be associated with a considerable increase in the spinal pressure, so that it is clear that a pressure reading taken during the course of a uræmic convulsion, for example, is of little value.

As far as we have been able to ascertain, no method of determining the absolute spinal pressure has been employed; in all cases some quantity of the cerebrospinal fluid is allowed to escape from the theca before a reading can be obtained, the tension being thus of necessity reduced to a variable extent. In our own work we have demonstrated that the loss of quite a small amount of cerebrospinal fluid produces a very considerable diminution of the intrathecal tension.

We have contrived a simple apparatus by means of which a direct reading of the spinal pressure may easily be obtained after the escape of an inappreciable and constant volume of cerebrospinal fluid. It consists of a hollow needle of 1·5-mm. bore, provided with a close-fitting stylet. The pointed ends of both needle and stylet are cut at an

angle of about 35 degrees, and 2 cm. from the blunt end of the needle there is a simple cock. Into the lumen of the needle beyond this cock can be fitted a tapped nozzle, which is connected to an open glass tube—some 18 cm. in length and 15 mm. in diameter—by a metre's length of rubber pressure-tubing. A wooden clip, to which is attached a measuring tape, can be fixed to any point of this glass tube.

In order to take a reading, after the apparatus has been sterilized by heat, the patient is placed on the side with the lumbar spine well flexed; great care must be taken that the cerebrospinal axis is as far as possible horizontal. Normal saline solution at 120° F. is poured into the glass tube and pressure-tubing, and the tap on the nozzle is closed when the glass tube is half-full of the solution; the wooden clip is then fixed on the glass tube to mark the level of the saline solution. The theca is punctured through one of the lumbar spaces, the needle being introduced exactly in the middle line and perpendicular to the coronal plane; the stylet is withdrawn and the cock is closed as soon as the cerebrospinal fluid appears at the orifice of the needle; not more than a drop or two should be lost. The pressure-tubing is then connected to the needle by means of its nozzle, and the glass tube is held so that the level of the fluid in it is at a height above the needle roughly equal to the expected reading. Both the taps—i.e., that on the needle and that on the nozzle—are now opened, so that the column of saline solution may be balanced against the cerebrospinal pressure. If the latter is greater than the height of the saline solution, fluid will rise above the level of the wooden clip, and vice versa. The glass tube is quickly raised or lowered, as may be necessary to keep the contained solution at its original level; the vertical height of the clip above the needle will then give the intrathecal pressure in terms of centimetres of normal saline solution. We have found that the density of normal saline solution at 120° F. is almost identical with that of water.

In any case where a proper communication has been established between the saline solution in the tube and the cerebrospinal fluid, a regular rise and fall in the pressure to the extent of about a centimetre will be observed, synchronous with the respiratory movements; unless this respiratory excursion is present no reading is of value.

We have made use of this simple method in over sixty cases, detailed considerations of which we hope to publish shortly. The highest pressure reading we have observed was 100 cm. of saline (in a case of cerebral abscess), and the lowest 7 cm. (in a case of diabetes insipidus).

## The Treatment of Splenic Anæmia by Splenectomy.

By G. A. SUTHERLAND, M.D., and F. F. BURGHARD, M.S.

SPLENIC anæmia, or primary splenomegaly, is a disease almost always, if not invariably, fatal, whatever the medical treatment may be. The pathology is not yet clearly determined, and reliance for the diagnosis must be placed at present on certain clinical features which are fairly well defined. In former years the term "splenic anæmia" has been loosely applied to other disorders of the blood and other diseases of the spleen, as is clearly shown in many recorded cases. But if surgical treatment is to be adopted, it is of the greatest importance to have the disease accurately defined, as otherwise disastrous results may follow, and the operation be unjustly condemned.

Professor Osler[1] has done much in differentiating the characteristics of splenic anæmia, and Dr. H. D. Rolleston[2] has summarized them as follows:—

(1) Anæmia of the type usually spoken of as chlorotic—i.e., a diminution in the number of red corpuscles, with a diminished corpuscular value in the hæmoglobin.

(2) Absence of any leucocytosis, usually leucopenia.

(3) Considerable splenic enlargement, which cannot be correlated with any other known cause, such as leukæmia, syphilis, tuberculosis, malaria, or hepatic cirrhosis.

(4) The prolonged nature of the disease.

(5) The tendency to gastro-intestinal hæmorrhage from time to time.

(6) The termination of the disease, if sufficiently prolonged, in hepatic cirrhosis with ascites (Banti's disease).

The last three of the above criteria may be described as accidental and non-essential. While Osler and Irving Lyon lay stress on the prolonged course of the disease, Frederick Taylor and Samuel West emphasize the fact that death usually occurs in from six months to four years. As a matter of fact there would appear to be acute or sub-acute cases and chronic cases, the latter of which may last from ten to twenty years. It may be that the juvenile type of disease tends to run a more acute course than that met with in adult life, as so often happens

[1] *Amer. Journ. Med. Soc.*, Philad., 1900, n.s., cxix, p. 54.

[2] *Clin. Journ.*, 1902, xix, p. 403.

in other affections. Certainly in the two cases related it was the steady progress of the patients downhill which led to the adoption of surgical treatment. Another of the points noted above—namely, the occurrence of hæmatemesis—does not appear to be so common in children as in adults, but Osler has recorded one instance. The termination of splenic anæmia in Banti's disease—hepatic cirrhosis with ascites—seems open to question, at least as regards the majority of cases, and Osler and Senator have pointed out that ascites may occur as a terminal event in anæmia without any hepatic cirrhosis.

The first three of the above criteria give the essential features of the disease. It will be noted that they rather exclude other diseases than indicate any special characteristics of splenic anæmia. The appearance of the patient is very striking, owing to the profound pallor, with generally a creamy tinge in the skin. We hope it may be possible to add a fourth criterion of the disease, at least in the case of children—namely, the rapid disappearance of all symptoms after splenectomy. Further experience of the results of operative treatment must be obtained before this can be done. The treatment by splenectomy is not new. Armstrong[1] has collected from the literature thirty-two cases of splenectomy for splenic anæmia, with twenty-three recoveries and nine deaths. At the same time it must be noted that many cases are included in which the diagnosis is by no means assured. The operation has rarely been performed in this country. In the *Transactions of the Clinical Society of London* there is only one case of splenectomy for disease recorded; the disease was leukæmia, and the result fatal. It is clear also from the recorded cases that too often splenectomy was performed as a last chance, when the disease had lasted for many years, and when a successful result could scarcely be expected.

### Case I.

R. H., a girl, aged 12, was admitted to hospital on April 24, 1906, suffering from rheumatism. For the previous two years she had been languid and complaining of pains in the extremities. At times the knee and other joints had been swollen and painful. No abdominal swelling had been noted previous to admission. The parents were healthy, and there were five other children—all boys—alive and healthy. Four children had died—all girls—three of them when quite young, and the fourth from splenic anæmia at the age of 13. There was no history of splenic disease in the parents or in any member of the

[1] *Brit. Med. Journ.*, 1906, ii, p. 1273.

family save these two sisters. The following is a short account of the elder sister's fatal illness:—

A. H., aged 13, was admitted to Guy's Hospital under Dr. Frederick Taylor in September, 1892. Four years previously she had complained of paroxysmal pain in the left side, and this had continued. At the same time a swelling was noticed in the left side, which was increasing. During the last three years she had become very pale, but there had been no hæmorrhage. On admission she was pale, with a yellowish tinge, but the conjunctivæ were clear. A systolic murmur was heard over the præcordia, probably functional. The liver was not enlarged. The spleen was much enlarged, reaching to 1¼ in. beyond the umbilicus. The average blood count showed red blood-corpuscles under 3,000,000, hæmoglobin 35 per cent., and no increase in white blood-corpuscles. Slight epistaxis occurred once. No improvement followed the administration of iron, arsenic, etc. The red blood-corpuscles fell to 1,500,000. The question of splenectomy was considered by Dr. Taylor and Mr. Jacobson, and this operation was suggested to the parents, who declined to sanction it. She was discharged on November 16, 1892, and died in the following February from progressing weakness. No post-mortem examination was made.[1]

On admission R. H. was well nourished but distinctly anæmic, the skin having a pale yellow tint all over, and the lips having little colour. The conjunctivæ were not jaundiced. There was a deeper pigmentation, of a brown colour, at some pressure areas—e.g., above the knees where the garters had been worn. The left side of the abdomen was occupied by a large solid mass, evidently an enlarged spleen, which measured 8 in. in its longest diameter, as tested by percussion and palpation. There was no pain or tenderness about this swelling, which was freely movable in all directions. The liver was not enlarged, and there was no bile in the urine. The heart was slightly enlarged, and a soft systolic murmur was present at the apex, considered valvular in origin. Apart from the subacute rheumatism from which she was then suffering, there was no evidence of constitutional disease such as syphilis, tuberculosis, or malaria. There were no hæmorrhages and no enlarged lymphatic glands. The result of examination of the urinary system and of the fundus oculi was negative. The temperature at times reached 100° F. in the evening, but there were no definite pyrexial attacks. On admission the red blood-corpuscles were 2,420,000, hæmoglobin 56 per cent., and white blood-corpuscles 9,800. A differential count of the whites showed nothing abnormal. The results of the various blood examinations are seen in the accompanying chart. It will be noted that on May 30 there was a condition of leucopenia, as is common in this affection, but the co-existence of subacute rheumatism may at other times have kept up the number of white cells, although a definite leucocytosis did not occur until after the operation.

Treatment was carried out by means of arsenic, iron, X-rays (three sittings), and full diet, and later she was sent to the convalescent home.

[1] The case is published in full by Dr. Frederick Taylor in the *Guy's Hospital Reports* (1895) 1896, lii, p. 173, under the title "A Case of Splenic Anæmia or Primary Splenomegaly."

On readmission at the end of June she was distinctly more anæmic, and both red cells and hæmoglobin were found to be diminished. After consultation it was decided to excise the spleen, and this was done on July 20. The spleen with the contained blood weighed 2 lb. Apart from the hyperplasia of all the tissues, the only point which Dr. Emery noted on histological examination was a condition of hyaline thickening of the media in the arteries of the splenic tissue.

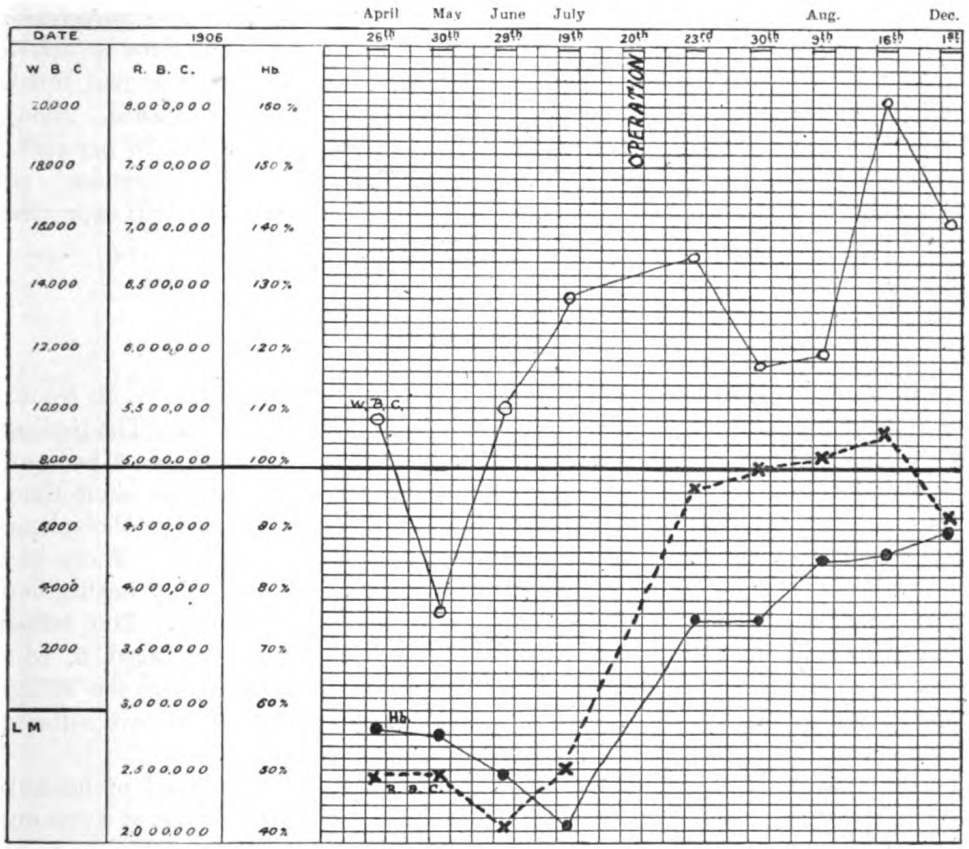



FIG. 1.

Case I. Splenic anæmia and splenectomy.

There was no marked shock after the operation, and when the effects of the anæsthetic had passed off the patient made a rapid recovery. Three days after the operation it was found that the red cells had increased from 2,500,000 to 4,700,000, and the hæmoglobin from 40 per cent. to 76 per cent., an improvement which was maintained, until, at the end of another week, the red cells were normal in number. This alteration was also visible in the appearance of the child; the yellow tinge of the skin had gone, the cheeks were pink in

colour, and the lips were taking on a healthy red hue. There was no compensatory enlargement of the lymphatic glands.

The further history of the case as regards symptoms of splenic anæmia is negative. She passed safely through an attack of scarlet fever two months after the operation. A condition of subacute rheumatism continued for two years, during which mitral stenosis developed and an attack of chorea occurred.

She was seen again in November, 1910, at the age of 17½, and four years after the operation. She was then a well-grown girl in service as a nursemaid. The cardiac lesion persisted, but there had not been any symptoms of active rheumatism for two years. Her mother stated that she never had much colour, but there were no marked signs of anæmia in her appearance. Blood examination showed red blood-corpuscles 3,600,000, hæmoglobin 78 per cent., and white blood-corpuscles 6,400. She suffered from dysmenorrhœa and menorrhagia, and from rather profuse epistaxis at times.[1] The girl expressed herself as feeling quite well and able for her work.

## Case II.

P. D., a girl aged 6, was sent to hospital on April 7, 1910, by Dr. W. M. Noott, of Kensington, with a diagnosis of anæmia and enlarged spleen. The mother stated that the child had been pale since birth, and that this pallor had not increased recently. She had been short of breath on exertion for some time. Two months previously she had had a feverish attack, with pain in the splenic region, and Dr. Noott had then discovered the enlarged spleen. There had never been purpura or any form of hæmorrhage. Her previous health had been good, and she had not suffered from any other illness. The father and mother were both healthy. There was one other child, aged 5, who was in good health. This child, when seen, was rather pale, but the spleen was not enlarged. No other member of the family was known to have suffered from splenic disease.

On admission the child was found to be well nourished and of healthy appearance apart from the anæmia. The skin of the face was pale, of a creamy tint, with a faint pink flush on the cheeks. The lips, eyelids, and gums were pale. The yellowish tinge seen in the face was also present in the conjunctivæ and in the skin generally. There was no deeper staining over pressure points. Some of the cervical glands were slightly enlarged, but there was no evidence of any general glandular enlargement. A large solid mass was felt in the left side of the abdomen, which was evidently an enlarged spleen. It extended downwards a finger's breadth beyond the umbilicus, and its longest diameter measured 6 in. The spleen was freely movable and not tender or painful. The liver was not enlarged and there was no bile in the urine.

[1] It must be left an open question as to whether the menorrhagia and epistaxis are due to mitral obstruction or other cause.

Examination of the blood showed red blood-corpuscles 2,550,000, white blood-corpuscles 6,300, and hæmoglobin 34 per cent. A differential count of the whites showed: Polymorphs, 50 per cent; eosinophiles, 4 per cent.; lymphocytes, 33 per cent.; large mononuclears, 1·6 per cent. No increased bleeding occurred on pricking for the blood examination. There was no evidence of disease in the cardiac, pulmonary, or renal systems. The fundus

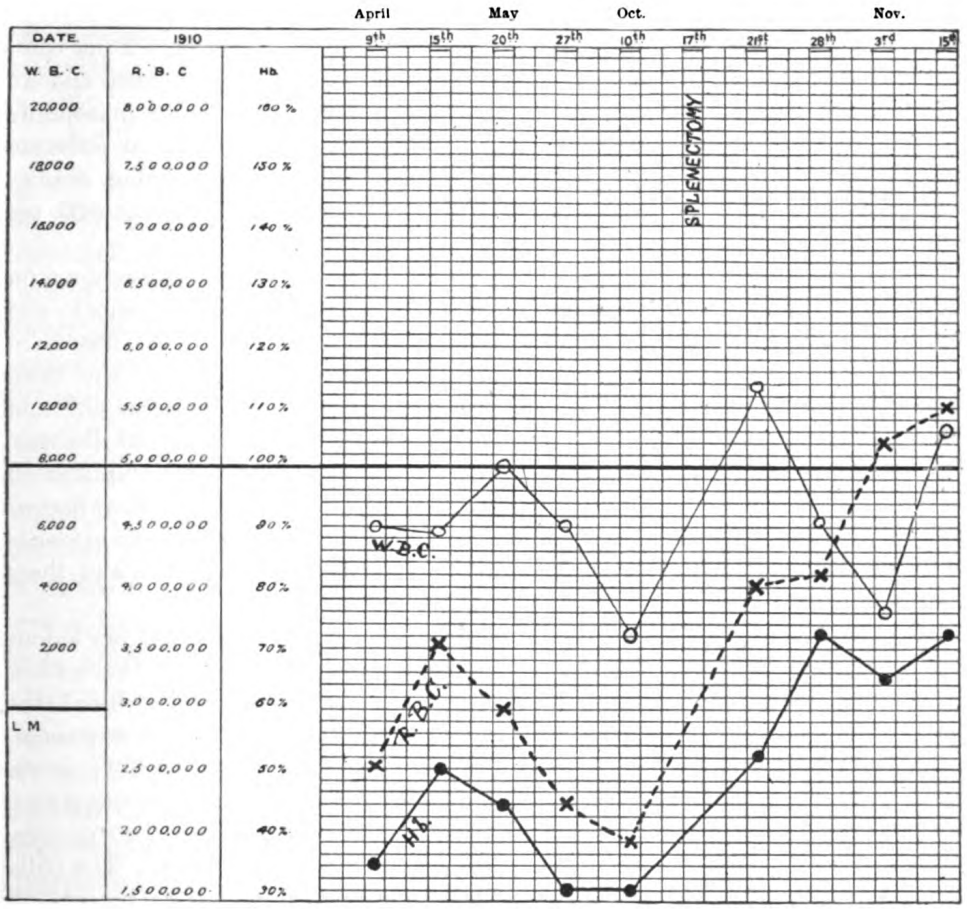



FIG. 2.

**Case II. Splenic anæmia and splenectomy.**

oculi showed no abnormalities. Von Pirquet's test and the Wassermann reaction were negative. The temperature usually rose to 100° F. at night, falling to normal in the morning. Epistaxis occurred once during her stay in hospital. The treatment was rest in bed, full diet, arsenic, and iron. After a fortnight in the hospital she developed measles and was sent home.

During the summer she spent some weeks at the convalescent home and

her colour improved considerably. The spleen varied in size from time to time, but only to a slight degree.

She was readmitted to the hospital on October 8, 1910. The only changes to be noted were the increasing pallor, listlessness, and tiredness.

Examination of the blood on October 10 gave the following result: Red blood-corpuscles, 1,870,000; hæmoglobin, 30 per cent.; white blood-corpuscles, 2,400; colour index, 0·8; polynuclears, 51 per cent.; lymphocytes (small), 37 per cent.; large lymphocytes, 6 per cent.; hyalines (large), 0·4 per cent.; myelocytes, 1·2 per cent.; eosinophiles, 2·4 per cent.; mast cells, 1·2 per cent. The red corpuscles were very various in size, megalocytes, microcytes, and all intermediate gradations being present. There was a little polychromatophilia in some of the corpuscles, but it was not marked, and there was no punctate basophilia. The reds were normally shaped, poikilocytosis being absent. Nucleated reds, all normoblasts, were present to the extent of about 600 per c.mm.

After consultation it was decided to excise the spleen, and this was done on October 17. She stood the operation well, there was no marked shock, and after the effects of the anæsthetic had passed off she had no untoward symptoms of any kind. The temperature continued normal after the third day. On removal the spleen showed no gross changes save its great size and congested appearance. It weighed 1 lb. As regards the histological changes, Dr. Emery found no very marked abnormalities of structure. The pulp seemed to be rather more abundant in red corpuscles than normal. The fibrous reticulum of the pulp was slightly more developed than in health. No evidence of blood destruction or phagocytosis of the red corpuscles was seen, and there were no normoblasts.

On October 21—four days after the operation—it was noted that her colour had decidedly improved, that the lips were redder, and that the yellow tint of the conjunctivæ and skin had gone. Examination of the blood the same day confirmed these signs of improvement: Red blood-corpuscles, 4,000,000; hæmoglobin, 52 per cent.; white blood-corpuscles, 10,800; colour index, 0·6; polynuclears, 68 per cent.; lymphocytes, 20 per cent.; eosinophiles, 2·8 per cent.; mast cells, 0·4 per cent. There were no abnormal red corpuscles, nucleated or degenerated forms seen, and no abnormal leucocytes. The child improved daily, and the languor and listlessness which had been present all through the illness passed off. There was no compensatory enlargement of the lymphatic glands. On the seventeenth day after the operation the red corpuscles were 5,200,000, whites 3,400, and hæmoglobin 65 per cent.; the eosinophiles were 7·2, a marked increase, which has been noted in other cases after splenectomy (Harris and Herzog).[1]

At the present date—seven weeks after the operation—the patient is in good health. The red blood-corpuscles are 5,300,000, the hæmoglobin is 86 per cent., and the white blood-corpuscles are 13,600. Her colour is excellent, and she has been gaining weight.

[1] *Annals of Surgery*, Lond., 1901, xxxiv, pp. 111, 193, 202.

THE OPERATION.

The steps of the operation call for little remark. In both cases the incision was made through the left rectus, parallel and just internal to the left linea semilunaris. In the first case the spleen was so much enlarged that its undue mobility allowed it to be dislocated into the wound and outside the abdomen with great ease. In the second case the mobility of the organ was not so marked, and the only difficulty experienced in the operation was to dislocate the spleen without injuring it. In order to accomplish this satisfactorily, the outer edge of the incision had to be depressed forcibly with large retractors.

In neither case were there any adhesions present between the capsule of the spleen and the abdominal wall, and the question of hæmorrhage never caused the least anxiety. The only bleeding was from the abdominal incision, and care was taken to reduce this to a minimum by clamping every bleeding point as it was met with. The actual removal of the organ was done methodically as follows: When the spleen was protruded through the wound, cautious traction was exerted by an assistant, so as to put upon the stretch the gastro-splenic omentum running from the hilum of the spleen to the fundus of the stomach. The anterior layer of this was then divided separately between pressure forceps, three pairs being used on each side of the line of division. This exposed the left gastro-epiploic artery and the vasa brevia, lying in front of the posterior layer of the ligament. These vessels were pushed aside, while the smaller branches were controlled at their entry into the hilum by a large clamp forceps, and the posterior layer of the omentum was then taken up in sections quite close to the fundus of the stomach by three pairs of pressure forceps, and divided with scissors between the forceps and the clamp. This severance of the gastro-splenic omentum allowed the spleen to be rotated still further outwards and pulled up into easy reach the lieno-renal ligament with the splenic artery and vein between its layers. This traction proved very useful, as it converted this structure into a true ligament, so that it was easy to transfix it with one blade of the pressure forceps where it was clear of vessels. A large clamp was put on near the hilum, and the ligament and the vessels were then secured by two pairs of pressure forceps about ½ in. nearer the spine and divided between, and the spleen was then free. An interesting practical point developed in connexion with the ligature of the vessels. In the first case no ligatures were applied until the spleen had been removed. It was then found that the forceps on the

splenic vessels and the lieno-renal ligament retracted at once deeply into the abdomen under the vault of the diaphragm, and great difficulty was experienced in tying the ligatures owing to the cramped space in which the hands had to work. In the second case, therefore, each ligature was applied and tied immediately the forceps were freed, by dividing the tissues they were placed upon, and in this way there was no difficulty experienced in securing every vessel as it was divided. The ligatures were of medium-sized chromic catgut, and it was not judged necessary to reinforce them by a surrounding suture.

The entire operation was done in a very short time, and no shock was apparent at any time. The abdomen was closed in layers in the usual way.

In this paper we are concerned with the pathology of splenic anæmia only so far as it relates to the question of surgical treatment. There is no direct evidence of primary disease in any other tissue of the body than the spleen, and if a constitutional disease like malaria is present the case cannot be regarded as one of primary splenomegaly. Rolleston has suggested that "a chronic infective or toxic process has its head-quarters in the spleen, and that the poisons produced there give rise in the first instance to endothelial hyperplasia and fibrosis of that organ, and later so inhibit blood-formation as to produce anæmia of the type usually regarded as chlorotic." Our experience does not support the view that there is an inhibition of blood-formation. We believe that the spleen is actively engaged in the destruction of blood-cells. The yellowish tinge in the skin and in the conjunctivæ is probably due to active hæmolysis in the spleen; it is certainly not due to any disturbance of the liver function. The condition after splenectomy supports this view. The pigmentation of the skin and conjunctivæ disappears within a week, and at the same time the number of red cells and the amount of hæmoglobin increase with astonishing rapidity. If there had been inhibition of blood-formation we should not have expected such a rapid return to normal, but if the blood-forming organs had been working at high pressure to make up for the destruction of red cells, this rapid recovery, when hæmolysis had ceased, is exactly what would have been expected. In connexion with Case II it will be noted that the abnormal and degenerated red blood-cells which were present before operation had entirely disappeared at the time of the first blood-count after the operation. This also points to a condition of active hæmolysis in splenic anæmia, which ceases with the removal of the spleen.

The examination of the spleen, post mortem and after excision, has been most elaborately carried out, more especially by American investigators, and has failed to reveal any clear evidence as to the nature of the disease. The tendency has therefore been to fall back on some theory of toxæmia due to the changes in the spleen. Yet the toxæmic result may be described as an exaggeration of what is usually considered the normal function of the spleen—namely, the removal or destruction of red cells.

On the other hand, if we assume a loss of vasomotor control in the splenic artery leading to over-filling of the spleen with arterial blood, it is possible to understand all the morbid changes in the spleen and in the blood. The spleen itself would be enlarged, and its substance generally —Malpighian corpuscles, endothelial cells, connective tissue, &c.—would be in a state of active hyperplasia. This is the usual condition found after splenectomy or post mortem, with the added changes which time has brought in prolonged cases. At the same time the functional activity of the spleen would be increased, and the function which is usually ascribed to it is that of removing red corpuscles by means of its large endothelial cells. Instead of mere scavenging work it is easy to understand that these endothelial cells, in greatly increased numbers, may attack not only effete cells, but those which are healthy, and that active hæmolysis and destruction of hæmoglobin follow. The hæmatemesis which is such a striking feature in many of the cases will be easily explained on the same assumption—i.e., that the arterial blood sent to the stomach through the splenic artery is excessive in amount, and over-distension and rupture of the stomach vessels result. An analogous condition is seen in the case of the thyroid gland in Graves's disease. The thyroid is distended with blood, its tissues are in a state of hyperplasia, and its normal secretion is poured out in increased and toxic amount. We do not wish to press the analogy, but to emphasize the point that a disease of the thyroid is not assumed to be present in Graves's disease, but only a disturbance of function, and that, similarly, a disease is not necessarily present in the spleen in splenic anæmia, but simply a disturbance of function. If this be accepted, and if it be recognized that this disturbance of function will usually have a fatal termination, the operation of splenectomy will be fully justified and will probably be more frequently carried out in the future than it has been in the past.

The results of operative treatment in both cases were very striking. The patients stood the operations well, and did not suffer from any

pronounced shock. After the effects of the anæsthetic had passed off, improvement seemed to set in at once. Within a few days one could notice the disappearance of the yellow tinge of the face and skin generally, and a more healthy red colour deepening in the lips and cheeks. This visible change for the better was more than confirmed by the examination of the blood. We submit the blood reports with confidence, because in both cases they were carried out by Dr. D'Este Emery, to whom our best thanks are due for his valuable assistance. In Case I three days after operation the red cells had increased by 2,200,000, and the hæmoglobin by 36 per cent. This was no accidental occurrence, for three weeks later the red cells had again increased by 700,000, and were 400,000 above normal, while another 10 per cent. had been gained in hæmoglobin, which now stood at 86 per cent. In Case II, four days after operation the red cells had increased by 2,200,000, and the hæmoglobin by 22 per cent., and a month later there was an additional gain of 1,500,000 red cells and of 20 per cent. of hæmoglobin. We have not found in the recorded cases of splenectomy any accounts of such rapid restoration of the blood to normal. Some writers comment on the slowness with which the blood returns to normal after splenectomy for splenic anæmia. Dr. Emery informs us that in cases of secondary anæmia from accidental hæmorrhage a gain of 1 per cent. of hæmoglobin daily is considered a normal increase. In the above cases we have a gain of 36 per cent. and 22 per cent. respectively in four days, while at the same time the red cells doubled in number. Such a result points strongly to the blood-forming organs being in a particularly active condition, while it also suggests that the blood-destroying function of the spleen must have been developed to an excessive degree. It is possible that the rapid restoration of the blood to normal in these two patients was due in part to the comparatively early stage in the disease at which splenectomy was performed.

As regards the ultimate result of the operation we can only give particulars in one case, the other having been so recently operated on. The first patient when seen at the age of 17½, four years after the operation, was a healthy girl without any signs of splenic anæmia. This result may be contrasted with the fate of her sister who died at the age of 13 from progressive anæmia and debility. In the published cases of this disease in which the spleen was successfully removed, the ultimate result seems to have been a complete cure, records having been obtained up to eight years after operation. It is probable that the two

factors present in our cases, the youth of the patient and the comparatively early stage of the affection, were of importance from the point of view of prognosis. While a preliminary course of medical treatment will naturally be adopted in all cases of splenic anæmia, experience has shown that it is never curative, and if the diagnosis is clear, treatment by splenectomy should not be unduly delayed.

## DISCUSSION.

Dr. F. DE HAVILLAND HALL said that in January, 1909, there was admitted under his care at Westminster Hospital a girl 8½ years of age, drowsy, anæmic, and slightly dropsical. She had a very large spleen and a slightly enlarged liver. The day after admission the hæmoglobin was 52 per cent., and the red cells 3,910,000, the white cells 6,000. After this date the red cells never fell below 4,000,000, but there was a steady fall in the number of whites until on March 3 they were 1,200. In spite of treatment the child still went downhill, and in the first week of March he asked his colleague, Mr. Spencer, to see the child, with the idea of removing the spleen. That he agreed to do, as the spleen had reached nearly to the crest of the ilium. There were adhesions to the pancreas and stomach. After removal the spleen weighed 2¼ lb. Eight days afterwards the enlargement of the liver had disappeared, and an immediate result of the operation was a great increase in the hæmoglobin and a rise in the red corpuscles to 5,450,000, white to 15,600, and a fortnight later 66,000. These gradually fell to 12,600. Mr. Spencer said he had seen the patient recently, and she was in good health.

Dr. H. D. ROLLESTON, while congratulating the readers of the paper on the extremely successful result, referred to a case of splenic anæmia under his care in which operation had been followed in a few hours by fatal gastro-intestinal hæmorrhage. That raised the question as to the causation of fatal gastro-intestinal hæmorrhage in splenectomy, not only for splenic anæmia, but for leukæmia, where the operation was so fatal. He asked the authors if the point at which the ligature was applied could be responsible for the difference between a successful and a fatal result. Thus, if the ligature put on the splenic vein occluded extensively the vasa brevia from the cardiac end of the stomach, gastric hæmorrhage might be induced. It was too late in the evening to attempt to discuss the pathology of splenic anæmia, but he did not agree with the view that in splenic anæmia there was an increased destruction of red corpuscles or hæmolysis; one reason for this opinion was the absence of increased pigmentation in the spleen and liver. He agreed with the authors that in all probability in splenic anæmia the cause of the evil, whether bacterial or other, was situated in the spleen, and that splenectomy was therefore a reasonable form of treatment.

The PRESIDENT said that some years ago he removed a spleen for his colleague, Dr. Coupland, at Middlesex Hospital, the patient being a woman with splenic anæmia, who had been under treatment and observation for some time,

but whose symptoms had become more marked. She made a good recovery from the operation, and left the hospital in excellent condition, having lost her anæmia, and her red corpuscles having returned to the normal number. She came back some months afterwards in a plethoric condition, with a very great excess of red corpuscles. She eventually died in the hospital from gastric and œsophageal hæmorrhage, the source of which was some dilated veins at the lower end of the œsophagus and the adjacent portion of the stomach. There was no evidence in that case that the ligature had obstructed the vasa brevia. He had a vivid recollection of the striking change in the patient; from being an anæmic woman she became strikingly plethoric, or, rather, the subject of polycythæmia rubra.

Dr. DALTON said that in Dr. Taylor's case, which had been mentioned, there was no post-mortem. The mother had had one miscarriage, if not more. It was before the Wassermann test was known, but it was extremely probable that, since two of her children suffered with splenic anæmia, both cases were due to congenital syphilis. He thought many cases of splenic anæmia were difficult, if not impossible, to diagnose from aplastic anæmia. There was the same oligocythæmia, with chlorosis, and often an enlarged spleen. If a post-mortem was obtained, however, it was found that the bone marrow was atrophied.

Dr. PARKES WEBER said the diagnosis in these cases was the great difficulty. The symptom-complex of "Banti's disease" arose from various causes.[1] He recently had a case in which the symptoms at first were those of Hodgkin's disease. Afterwards the enlargement of the superficial lymphatic glands almost disappeared, but splenomegaly developed, with ascites, great anæmia and leucopenia; and the clinical picture became one of Banti's disease. Wassermann's reaction for syphilis and Pirquet's cuti-reaction for tuberculosis were both negative. The necropsy showed considerable enlargement of the thoracic and abdominal lymphatic glands, especially at the hilum of the liver; but the microscopical examination was not yet completed. There was, he believed, another clinical type of splenic anæmia, which might be only a temporary phase—namely, what might be termed "anæmia splenica sine anæmia," because, for the time at least, there was no marked anæmia. If these cases could be definitely diagnosed, they would perhaps be better suited for operation than the very anæmic cases.

Mr. BURGHARD, in reply, said he did not know what was the cause of the fatal gastro-intestinal hæmorrhage in the case referred to by Dr. Rolleston; but in the first case he operated upon it occurred to him how easy it would be, if one ligatured the gastro-splenic omentum by one or two large ligatures, to interfere with the circulation of the fundus of the stomach. He divided the anterior layer of the gastro-splenic ligament separately, and so saw exactly where to put the ligatures. Anyone ligaturing it in one mass might have included part of the stomach wall in the ligature, and that would cause gastro-intestinal hæmorrhage immediately after the operation.

[1] *Cf.* F. P. Weber, "Case of Chronic Malignant Endocarditis simulating Splenic Anæmia," *Med. Soc. Trans.*, London, 1910, xxxiii, p. 83.

# Clinical Section.

January 13, 1911.

Mr. Bruce Clarke, Vice-President of the Section, in the Chair.

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## Familial Pigmentary Dermo-fibromatosis.

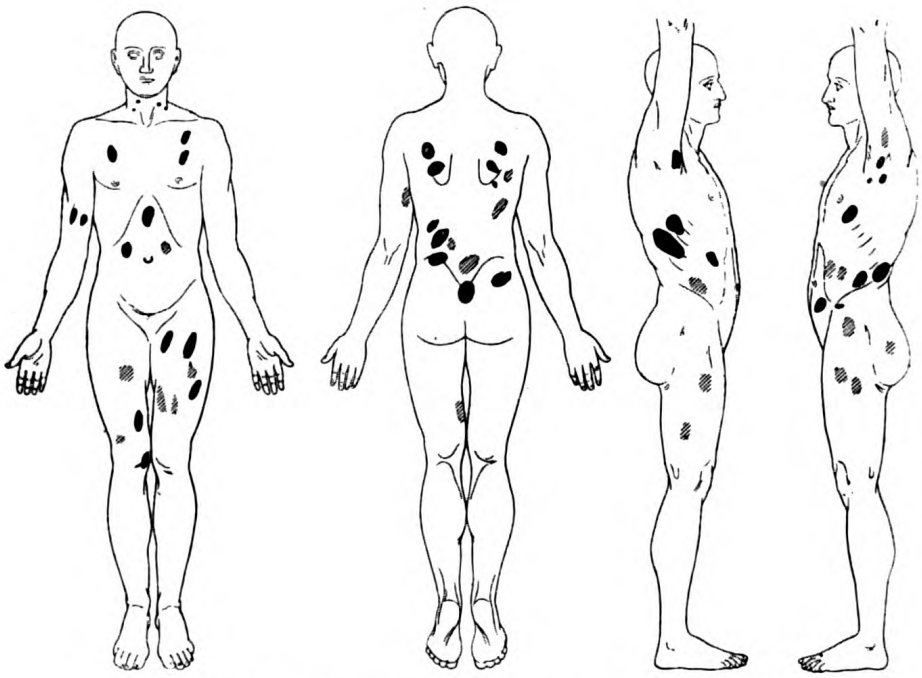
By J. D. Rolleston, M.D., and N. S. Macnaughtan, M.B.

*Case I.*—Father, aged 47. No illnesses beyond scarlet fever and measles in early childhood; general health good, apart from "bilious attacks" about once a month. He has had the nodules and pigmentation as long as he can remember; he does not know which appeared first. Nodules have become more numerous since a severe attack of pneumonia thirteen years ago. Both parents alive; father, aged 72, shows numerous small nævi and moles on the trunk; mother, aged 73, has some nævi on the trunk and a large area of pigmentation in the lumbo-sacral region; both show slight yellowish tinge of skin. Present state: Trunk thickly set with molluscous tumours, mostly sessile, in all stages of development. A few lesions on face and limbs. Skin of abdomen and inner side of thighs shows yellow groundwork of pigmentation, with pigmented spots and a few café-au-lait patches Pigmentation of anterior axillary folds well marked. No pigmentation of buccal mucosa. No deformities of skeleton or mental symptoms. Knee- and ankle-jerks active. Plantar reflex flexor. Blood-count normal; eosinophiles, 2—3 per cent. Blood-pressure, 130 mm. Hg.

*Case II.*—Daughter, aged 13. General yellowish tinge of skin, punctiform pigment spots and café-au-lait patches scattered over neck, trunk, arms and thighs, one ink-spot over left costal margin, numerous blue spots, some slightly raised above skin, on trunk and thighs, one on

left upper arm. Nævoid growth of right half of upper lip, displacing upwards the ala nasi; the skin over it has a bluish tinge and is covered with fine hairs. Corresponding alveolus has a prominent bony ridge; small nodule in left frontal region at margin of hairy scalp. Slight

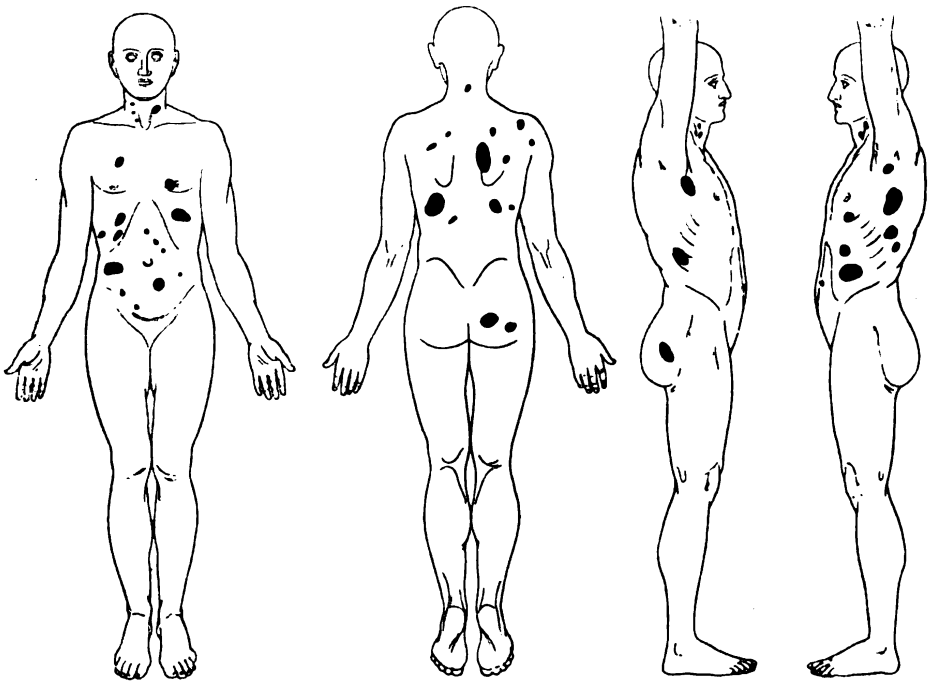
Case II.—Photograph showing growth in upper lip.



Case II.—Daughter, aged 13. Pigmentation in black; the shaded parts represent the blue spots.

scoliosis, intelligence good. Suffers from "bilious attacks" about every two months. Mild attack of diphtheria, November and December, 1910; since commencement of attack blue spots have become more numerous. Blood examination shows slight anæmia.

*Case III.*—Daughter, aged 5. General yellowish tinge of skin, punctiform pigment spots, and café-au-lait patches on neck and trunk; limbs free; no molluscum. Diphtheria, November and December, 1910; mother thinks that the patches have become more numerous since the



Case III.—Daughter, aged 5. Areas of pigmentation.

beginning of the attack. Blood-count normal; eosinophiles, 2—5 per cent. The other two children, a boy aged 14 and a boy aged 10, show slight yellowish tinge of skin, but no molluscum or pigmentation. The eldest boy has one small mole on the chest and another on the left buttock.

Microscopical examination of one of the father's tumours and of the eldest daughter's blue spots shows presence of fibrous tissue, but no nerve-fibres.

## DISCUSSION.

Dr. J. D. ROLLESTON said that they had adopted the term "dermo-fibromatosis," first used by Professor Chauffard [1] in preference to neuro-fibromatosis for three reasons: (1) The nodules in the father appeared to be independent of the cutaneous nerves; (2) there were no apparent enlargements of the deeper nerves; (3) histological examination of nodules removed from the father and the eldest girl showed an absence of nerve-fibres. The condition exemplified by this family, however, was undoubtedly related to von Recklinghausen's disease, of which it might be regarded as an incomplete form or *forme fruste*. The eldest daughter presented a good example of the disease evolving in different stages, the pigmentation having preceded the blue spots—i.e., the young molluscous tumours. In the case of the younger child no molluscum had yet appeared, but in all probability it would do so later. Of special interest was the relation of the condition to infectious diseases. The father stated that, after an attack of pneumonia thirteen years ago, the nodules became more numerous, and during the time that his children were in hospital with diphtheria the blue spots of the elder girl and the pigment patches of the younger child increased in number and size. It is not improbable that the approach of puberty, superadded to the acute infection, would cause a further development of the lesions in the elder girl. Another noteworthy feature was the familial occurrence of so-called "bilious attacks." Gastric disturbance had been recorded in several cases of von Recklinghausen's disease, in some cases of which neuro-fibromata have been found in the wall of the stomach and intestines.[2] It was an interesting fact that familial vomiting occurred in a peculiar case of pigmentation published by Dr. Parkes Weber, which he regarded as an incomplete form of von Recklinghausen's disease.[3] In view of the fact that an attempt had been made to associate von Recklinghausen's disease with tuberculosis,[4] it should be stated that no evidence of tuberculosis could be found in any member of the family. In the two children von Pirquet's reaction was negative. The doctrine of pluri-glandular insufficiency [5] was also inapplicable here, for none of the patients showed any physical or mental signs of disease of the glands of internal secretion. Lastly, it should be noted that the eosinophiles were normal in amount, though in some cases of von Recklinghausen's disease they had been as high as 15 per cent.[6]

Dr. JAMES GALLOWAY said that there were two points of interest drawn attention to by Dr. Rolleston, which he (Dr. Galloway) wished to emphasize.

[1] *Bull. et mém. Soc. méd. des hôp. de Par.*, 1896, 3me sér., xiii, p. 777.
[2] Adrian, *Beitr. z. klin. Chir.*, Tüb., 1901, xxxi, p. 24.
[3] *Brit. Journ. Child. Dis.*, 1906, iii, p. 13.
[4] Poncet, *Bull. et mém. Soc. méd. des hôp. de Par.*, 1909, 3me sér., xxvii, p. 714.
[5] Muto, *Riv. di Patol. nerv. e ment.*, Firenze, 1910, xv, p. 656.
[6] Gaillard, *Compt. rend. hebd. Soc. de Biol.*, Par., 1906, lxi, p. 563.

The first was the coexistence of pigmentary lesions of the skin in such cases along with the fibrous tumours. Cases of this character had been frequently presented to the Society recently, more fully developed than the two younger of the present cases, so that the impression naturally gathered was that the occurrence of the fibrous tumours formed the principal feature in the disease. It was clear, however, that the disease must be regarded as a serious defect in the development of many of the mesoblastic structures of the skin, and that other lesions besides the fibrous tumours must be expected to exist. The pigmentation, therefore, should be regarded as evidence of the disease just as much as the fibromatosis itself. The second point was the character of the tumour of the upper lip of the elder girl. It must be admitted that an exact diagnosis was difficult; the tumour might be a so-called "neuro-fibroma." On the other hand its texture, the bluish flush over it, suggested the possibility of an angioma. In the case of its being a fibroma, it might possibly be removed with advantage. If, on the other hand, it proved to be angiomatous, it would be difficult to deal with it satisfactorily. He had seen one attempt to treat such a case by means of interstitial injections of carbolic acid, but the result was disastrous. In another an attempt had been made to excise the tissue; the result in the latter case had been a little more satisfactory. He did not think that the removal of an angiomatous tumour in this position should be undertaken unless it were a matter of necessity.

Dr. H. D. ROLLESTON referred to a case of von Recklinghausen's disease, published by him in 1899,[1] which presented the three cardinal signs—namely, cutaneous tumours of the nature of molluscum fibrosum, subcutaneous fibrous tumours on the nerves in which nerve-fibres could be found, and areas of pigmentation of the skin. In that case death was due to a sarcoma developing in a fibroneuroma of the brachial plexus. A son of this patient had areas of cutaneous pigmentation, but no tumours. He considered that the father shown before the Section this evening was a characteristic case of von Recklinghausen's disease. The skin over the fibroneuromata showed, as Professor Osler had pointed out, atrophy of the overlying skin. The growth of the upper lip of the eldest girl was probably a plexiform neuroma. He considered that von Recklinghausen's disease was a developmental defect of the mesoblast at its junction with the epiblast, a view put forward by the late Dr. J. F. Payne in 1887.[2] Other developmental diseases of the mesoblast at deeper layers were multiple chondromata and probably myositis ossificans progressiva.

Dr. F. PARKES WEBER said he thought one of the most interesting points in this family was the question of the condition of the upper lip in the elder daughter. There was a hard, irregular, knotty cord to be felt from the inside of the lip in the upper part of the swelling, and he felt convinced it was connected with a nerve-trunk and was a kind of plexiform neuroma; it could scarcely be anything else. In the elder daughter there were therefore present

[1] Rolleston, *Lancet*, 1899, ii, p. 271.

[2] Payne, J. F., *Trans. Path. Soc. Lond.*, 1887, xxxviii. p. 69.

all the three chief component elements of Recklinghausen's disease. There were (1) the superficial molluscous tumours, in which nerve-fibres might or might not be demonstrable; (2) patches of cutaneous pigmentation, like dirty circular or oval, not very dark, blotches on various parts of the body; and (3) there was a kind of plexiform neuroma. In some cases of Recklinghausen's disease there were very few molluscous tumours, and what there were seemed small and atrophied and transformed into soft material; they felt like minute flaccid sponges in the skin. He thought that one of the tumours on the right arm of the father was translucent, felt like a cyst, and was gradually undergoing a transformation in the direction of atrophy. He had noticed how very common it was in the routine examination of ordinary persons to find one or two faint circular or oval patches of cutaneous pigmentation, which might be called superficial pigment-nævi, and were exactly similar to those met with in patients with Recklinghausen's disease. Indeed, if Recklinghausen's disease could be split up into its component elements, perhaps almost half the people of the world would be found to be "incomplete cases"—that is to say, to have some manifestation of it, in the form of one or two faint circular or oval patches of dirty-looking (or "café au lait") cutaneous pigmentation on some part of their trunk or in the form of one or two soft superficial (molluscous) fibromata.

Dr. F. J. POYNTON pointed out the entire absence of painful symptoms in these particular cases, and he asked whether such patients were likely to develop, later, painful neuro-fibromata. Perhaps the worst case of suffering he had ever seen was in a case of Recklinghausen's disease, where there was a mass in the abdomen which caused excruciating pain. This was thought to be a malignant growth of the pancreas, but laparotomy showed an enormous plexiform neuroma.

Dr. G. A. SUTHERLAND said the chief difference of opinion seemed to centre around the condition in the upper lip of the elder daughter. He agreed with those who regarded that swelling as a part of the neuro-fibromatosis. Similar masses were also often found in connexion with the eyes; he had seen several cases of enormous soft swellings in the upper eyelid. Another point in support of the view he had mentioned was the thickening along the upper jaw. As in the present cases, the regions supplied by the fifth nerve were specially liable to these areas of hypertrophied tissue. Therefore he agreed that probably it was not a separate tumour of any sort, but a part of the general condition. He agreed with Dr. Galloway that the results of surgical treatment had not been encouraging.

Mr. CARLESS said that he recently had the opportunity of operating on a case of plexiform neuroma of the chest wall in a girl aged 16. Casual examination suggested at first that it was a tuberculous abscess connected with a rib, but she also had tumours connected with the nerves scattered over the body, of which he took out a number for microscopical examination; some of them contained nerve-fibres. There was very little pain in most of them,

but a few were definitely painful on pressure. She also had a certain small number of tiny molluscous tumours, and some pigmentation. On cutting down, the swelling in the side was found not to be an abscess but a plexiform neuroma, and there was no difficulty in dissecting it out, except for one small portion which burrowed down between the ribs along the branch of the lateral cutaneous nerve. In the case which was shown that evening he would not hesitate to operate on the face, and if the diagnosis of plexiform neuroma were correct he did not doubt there would be a satisfactory result from operation.

Dr. J. D. ROLLESTON, in reply, said he had been much interested by the observations, especially the important matter of dealing with the growth on the upper lip of the daughter. He used the non-committal term "nævoid growth" because he was not certain as to its nature. He told Dr. Parkes Weber that the opinion of himself and his colleague was that it had a feeling like that of a bag of worms, and at that time he (Dr. Rolleston) did not know that was a characteristic of plexiform neuroma. Comparing the feeling of the swelling afterwards with that on the lip, it was his opinion that there was no difference. In favour of its being vascular it was considered that the fact that the alveolus had a prominent bony ridge and there was a hairy growth on the upper lip was important. They had an open mind about it, but were pleased to know that plexiform neuroma was the idea of the majority. With regard to pain, the prognosis in all cases of Recklinghausen's disease in the complete or incomplete form should be guarded, because of the possibility of the tumours taking on malignant growth and thereby causing much pain by pressure on nerves.

## Symmetrical Gangrene of both Legs, Fingers of both Hands, and Nose.

By C. C. CHOYCE, F.R.C.S.

THE patient, a marine coal-trimmer, aged 25, is a coloured native of Grenada, and has never before left the West Indies. He has never had any previous illness except gonorrhœa. No evidence can be obtained of past syphilis, Raynaud's phenomenon, or renal disease. Whilst in the Channel, on his first sea voyage, on a day that was not unusually cold, he suddenly noticed on coming on deck that his fingers and feet became very cold. He lost sensation in them, and then power of movement, and noticed that holding them before the fire did not restore warmth and sensation. During that night his right foot was painful and became swollen, but he was able to do some of his work during the next day. During the next night his left foot also became swollen and painful;

his fingers remained cold and numb, but were not painful. During these two days he passed black urine; since then it has been quite clear. There were no rigors, no lumbar pain, no vomiting, no diarrhœa, and no soreness of gums or tongue.

For some ten days he was invalided on his ship, suffering from thirst, acute pains in the legs and arms, and hyperæsthesia above the levels of anæsthesia. On arrival in the Thames he was sent into the Seamen's Hospital, Albert Dock.

On admission his temperature was 101° F., but his general condition was fair. There was no evidence of a general endarteritis; there was no rash. The mouth was normal except for dry sordes about the lips and a moist, slight fur on the tongue. The feet from toes to 1½ in. above ankles were glossy, black, swollen, and quite cold. There was no definite pitting on pressure; no pulsation could be made out. Deep pressure could be felt by the patient, but all sense of ordinary touch was lost, except at a ring, ½ in. wide, at the upper limit of the gangrene, where there was marked hyperæsthesia. The patient could move the toes and ankles. The knee-jerks were present and normal. There was slight pain on deep pressure in the calves, but otherwise sensation above was normal. The fingers: On both hands the outer three fingers were black and cold, with a ring of marked hyperæsthesia at the line of the metacarpo-phalangeal joints. The index fingers both showed black, cold, anæsthetic patches. The patient could move the fingers, although the terminal phalanges of the outer three fingers of each hand were dry and shrivelled. The nose showed at its tip a small gangrenous patch of about the size of a threepenny-piece. The ears were normal. The urine contained no albumin, blood or sugar; its specific gravity was 1025. The stools were natural. The blood: Red blood corpuscles, 3,900,000 per cubic millimetre; white blood corpuscles, 25,000 per cubic millimetre; hæmoglobin, 70 per cent. Differential count: lymphocytes, 9 per cent.; large mononuclears, 5 per cent.; polymorphonuclears, 86 per cent.

The limbs were thoroughly cleansed with acetone and treated aseptically. A well-marked ulcerating line of separation has formed 2 in. above each ankle. Both superficial and deep tissues appear entirely dead. There has been some suppuration of the left leg, but the patient's general condition has steadily improved.

## Actinomycosis of the Abdominal Wall.

By C. C. CHOYCE, F.R.C.S.

THE patient is a piano tuner, aged 49, upon whom I operated for appendicitic abscess in June of last year. The abscess was a thick-walled bilocular one which contained a concretion and about one pint of fæcal-smelling pus. The appendix was not readily found; the abscess was therefore drained and the appendix left for a future operation. The patient rapidly improved in health and, his wound healing well, he left hospital in July, but states that almost immediately after leaving the hospital he noticed some firm swelling in the region of the upper part of the left inguinal canal. This was slightly tender, but his general health was good. Nothing abnormal could be felt on the left side of the abdomen at the time of operation. The swelling on the left side of the abdomen gradually enlarged until, when I saw him again in September, it extended from the left iliac spine to within 1 in. of the middle line, and from Poupart's ligament to within 3 in. of the costal margin above. It seemed to be confined to the abdominal wall, but was firmly attached to the ilium. The abdomen moved freely on respiration. The tumour was tender on deep pressure, but was not painful. His temperature was normal, and the general health not markedly affected. A leucocyte count showed the presence of 10,000 per cubic millimetre. There was a history of syphilis ten years before. The patient was treated with large doses of potassium iodide. A fortnight later the tumour was larger, being more prominent anteriorly, and now extending up to within 1½ in. of the costal margin, and to within ½ in. of the middle line. There was a reddened, slightly œdematous area over the centre, the temperature was 101° F., and the leucocyte count now 20,000. An incision was made into the softened area, and an abscess cavity found containing a few drachms of pus, and surrounded by dense masses of fibrous tissue. No actinomyces nor other organisms were found at this time. The abscess readily healed, and the upper part of the mass diminished in size, but there remained a fibrous mass extending down behind the pubes. Temperature again became normal after the operation. At the beginning of November, as the tumour was increasing in size again, the old scar was excised with a small portion of the mass. In this were found a few fistulous tracks

lined with granulations, and containing a slimy discharge in which were to be seen a few yellow granules. These on examination proved to be composed of actinomyces. The incision carried through the mass showed that the peritoneum was free. The tumour was composed of fibrous tissue and a small round-celled infiltration.

Since that date, under treatment with large doses of potassium iodide, the tumour had been decreasing in size, especially in its upper parts. It has, however, spread across to the right side of the abdomen. Now this part, too, is decreasing slowly.

## DISCUSSION.

Mr. CHOYCE, in regard to the first case, said Dr. Parkes Weber suggested that it might be malarial gangrene. The malaria parasite had been looked for, but was not found. The man said he had had fever, but he did not know what kind. He did not find evidence of endarteritis, therefore supposed it to be a marked first attack of Raynaud's phenomenon, or a definite attack of frost-bite. In reference to the second case, he would be glad to know whether the appendix was considered to be at fault, whether it was perpetuating the disease. When the man came back the condition was entirely on the left side, which was against that view. The tumour was entirely in the abdominal wall. The questions that he would like to hear discussed were: (1) Would it be wise to remove the appendix now on the chance that it formed the original focus of the disease? (2) Should any attempt be made to excise the tumour? (3) Should reliance be placed on the administration of iodides and local treatment.

Dr. JAMES GALLOWAY, referring to the diagnosis of Mr. Choyce's first case, said that he agreed that the diagnosis of Raynaud's disease was correct, but it had never been his lot to witness such a severe example of this condition. The occurrence of hæmoglobinuria, in addition to the other symptoms, seemed to be sufficient to confirm the diagnosis. In regard to the second case, he said that he had had the opportunity of carefully watching a very similar case. He had been first called to see the patient—a gentleman who had been operated upon by Mr. Godlee for inflammatory disease, thought to arise in the region of the appendix. So much matting of tissues was found that a diagnosis of appendicitis could not be definitely made at the time. An abscess was opened and drained, and the diagnosis of actinomycosis was then clearly established. Dr. Galloway saw the case some time afterwards with Dr. Fairweather. The patient was thin, emaciated, and was slowly losing ground. He was undergoing careful and prolonged treatment by means of iodide of potassium, and Dr. Fairweather was using an irrigation of alcohol through the sinuses left as the result of operation, and which had subsequently formed. The actinomycotic induration was evidently subsiding, but the exhaustion of the patient was intense. In

course of time he was asked to make a post-mortem examination in the case. The examination was carried out very carefully with Dr. Fairweather, but though many sinuses and much scar-tissue existed no trace of actinomycosis could be ascertained. It appeared as if the primary disease—actinomycosis—had been entirely cured, but that the patient had died of long-continued exhaustion. The disease lasted for more than eighteen months. An account of this case was published in the *British Medical Journal* for 1896.[1]

Dr. H. D. ROLLESTON referred to a case, primarily one of actinomycosis, which proved fatal from extensive suppuration, spreading from the right iliac fossa and following removal of the vermiform appendix, the pus from the wound after the operation showing the presence of actinomycosis. At the necropsy there was practically no trace of actinomycosis left, the patient having been thoroughly treated with iodide of potassium. A point of some interest about cases of actinomycosis in the right iliac fossa was as to their real starting point; the tissues in these cases were often so matted together that it was difficult to determine where the disease began, and it was probably often assumed that the appendix was the source of the mischief. There was some reason to believe that this was not always a true solution, and that the adjacent part of the intestine was first affected.

Dr. F. J. POYNTON said he would like to refer to a case which pointed in the opposite direction. The patient came to him with a large swelling spreading over the scapula, with which there was extreme pain, evidently from pressure on the nerve-roots. He did not know what it was, but thought it might be syphilitic. Eventually, however, an abscess formed, which was opened by Mr. Godlee and proved to be an actinomycotic mass. It was thoroughly dealt with at the time, but the next event was a gradual onset of paraplegia. For this laminectomy was done, and the growth was again thought to have been removed, but after many months of severe illness the patient died with paraplegia. It was then found that although the actinomycosis had been dealt with locally it had tracked along the nerve-roots and was still active in the spinal cord, and this in spite of the usual iodide treatment. The case showed how difficult it was to eradicate the disease, and how likely it was to go on to form small foci if any remained behind.

Mr. SIDNEY BOYD said the situation of the primary disease was important. It was not necessarily in the appendix, although it might be in the neighbourhood of that organ. Recently he had had under his care a girl, aged 20, who was sent with the diagnosis of chronic appendicitis, with which he concurred. She had had pain in the neighbourhood for some months. Under an anæsthetic he felt a swelling in the right iliac fossa, about the size of an egg, which he took to be thickening around the appendix. But on opening the abdomen the swelling was found to be due to thickening of the lower part of the ileum. On drawing the lowest coil of ileum up out of the pelvis he found about 10 in. of it in this condition. He removed about 15 in. of the ileum, together with

[1] *Brit. Med. Journ.*, 1896, i, p. 1555.

the cæcum and appendix and half of the ascending colon, and the adjacent part of the mesentery, which contained many enlarged glands. She made a satisfactory recovery. The disease turned out to be actinomycotic. In the case shown by Mr. Choyce he thought the primary disease of the appendix had healed up. The swelling on the left side he considered was possibly due to a deep condition in the sigmoid. He did not think it was wise to remove the appendix in the present case until the other disease was cured.

The CHAIRMAN (Mr. Bruce Clarke) said the meeting might be interested to hear of a case which, so far as he knew, had made a recovery—i.e., he was well after an interval of about four years. The patient upon whom he operated certainly had actinomycosis in his appendix. A year later he returned with what Mr. Bruce Clarke took to be an ischio-rectal abscess, and when he opened it he found it was a well-marked condition of actinomycosis. He scraped it thoroughly and treated the man with iodide of potassium for some time. Three years after the actinomycotic trouble had healed up he saw the patient, who said he felt quite well, and looked so.

Mr. CHOYCE, in reply, said that a case under his care three years ago confirmed the opinion that the prognosis was not always bad. The diagnosis was doubtful for some time, but on one occasion the man spat up actinomycotic pus. After large doses of iodide of potassium the condition cleared up, and the man was well now. Only once was actinomycotic material found. Some time later he still had signs of pus in one lung, but he put on flesh afterwards at the same extraordinary rate at which he lost it. He thanked Mr. Boyd for the suggestion that in the present case the actinomycosis might have come from the sigmoid region. He had not himself felt sure that the appendix had had much to do with it, because when the patient was first seen the right side was free.

## Case of Pulmonary Stenosis (Congenital) ?

By JAMES GALLOWAY, M.D.

THE patient is a girl, aged 4½, who was sent to Hospital on the discovery of the abnormality of the heart. She had "bronchitis or pneumonia" when 4 months old; the doctor who attended said that she had heart disease, which was probably congenital. She is a fairly well developed child, and gives evidence of no serious defect on inspection. There is no cyanosis nor clubbing of the fingers, but she gets breathless while at play and perhaps then a little cyanosed. There is a well-marked, long-continued systolic murmur to be heard, its point of greatest intensity being at the base of the heart to the left of the sternum, but the murmur may be traced all round the cardiac area, especially at its

upper margin; it continues also, though less obviously, in diastole. The case is shown as one of congenital pulmonary stenosis or patent ductus arteriosus.

DISCUSSION.

Dr. GARROD thought that the wavy murmur heard in this case, and apparently continuous throughout the cardiac cycle, was more probably due to patency of the ductus arteriosus, rather than to pulmonary stenosis.

Dr. F. J. POYNTON said he considered that the X-ray picture was against the diagnosis of patent ductus arteriosus; there seemed to be no conical cap over the usual cardiac dullness. The definite thrill in the second left space was rather in favour of patent ductus arteriosus, so also perhaps was the remarkable conduction of the murmur right down into the brachial artery and up into the vessels of the neck. He thought that possibly there was the definite line of dullness in the second and third left space, Gerhardt's band, and between that dullness and the edge of the sternum there was some resonance. He asked whether Dr. Galloway thought there was atresia of the pulmonary artery, patent ductus, and Rechtslage of the aorta?

Dr. GALLOWAY replied that he wished he could make a diagnosis in the case with sufficient accuracy to satisfy members of the Section. One point he wished to bring out, if the diagnosis of pulmonary stenosis should be accepted, was that the child was so remarkably well. She came into hospital that afternoon, and on entering the ward she had a fit of screaming, lying full length in her mother's arms. The Sister, even under these circumstances, failed to recognize blueness of the lips or other indication of cyanosis.

## Large Cavernous Nævus of Foot.

By SIDNEY BOYD, M.S.

F. S., AGED 20. As long as he can remember patient has had a longer right foot than left. He always noticed it specially swollen after prolonged standing. It has remained the same size since he grew up. Had no pain or inconvenience till end of last year, when it became more swollen and very tender. There is a large soft nævoid growth involving the great and second toes and inner half of foot on both dorsal and plantar aspects as far back as the internal malleolus. It refills very slowly after pressure. There is a slight tendency to varicosity of internal and external saphena veins. Trendelenburg's sign is negative

as regards the filling up of the nævus. Circumference of right foot at base of fifth toe, 10¾ in.; circumference of left foot at base of fifth toe, 9½ in.

## Congenital Absence of Chondro-sternal Portion of Right Pectoralis Major and of the greater part of Pectoralis Minor.

By SIDNEY BOYD, M.S.

PATIENT is a boy, aged 10. Movements of shoulder normal. Power quite good. He appears to suffer no inconvenience from the partial absence of the muscle. The coracoid process is rather less developed on the same side; (?) some flattening of right chest. There is also hyperextension of both elbow-joints.

### DISCUSSION.

Dr. F. PARKES WEBER asked whether Mr. Boyd thought that the varicosity of the veins in the leg in his first case was part of the original congenital or developmental condition. He had had, occasionally, the opportunity of seeing varicose veins combined with venous angioma in the same subject, and he had no doubt that in such (rare) cases the varicose veins were just as much a congenital or developmental deformity as the hæmangiomata were.

Dr. G. A. SUTHERLAND asked whether Mr. Boyd had any theory to explain the congenital absence of the sterno-mastoid muscle. This case was a mild form of the condition, because there was no definite loss of subcutaneous tissue or of bones, as happened in more pronounced cases. He remembered a girl, aged 17, with the same condition on the left side; there was, in addition, a total absence of the left breast, and in male subjects, the nipple might be absent. The commonly accepted view was that there had been pressure during intra-uterine life; that the hand was doubled up and the fist caused pressure atrophy. He thought that view was supported by the fact that a similar condition might be found in the upper part of the abdomen where part of the muscular wall might be absent. It was supposed to be associated with pressure by the knee during intra-uterine life. Considering the extensive nature of the atrophy in this condition, no nerve or vascular theory was likely to afford a satisfactory explanation.

Mr. BOYD, in reply, said he thought the varicose veins were of congenital origin, and the fact that they existed in this case supported the view put forward. With regard to absence of muscle, he talked the matter over with

Dr. Macphail, of Charing Cross Hospital, and he thought it was possibly due to the absence of the internal anterior thoracic nerve; but he did not advance any suggestion as to why that nerve was absent. The fact that the elbow-joint could be hyper-extended, suggested that the arms had been malplaced *in utero*, and this might have led to some unusual pressure on the muscles. On the other hand, both elbows were in this condition, but the absence of the muscles was unilateral.

## A Case of Congenital Pulmonary Stenosis, with Special Consideration of the Nature of the Secondary Blood Changes.

By F. Parkes Weber, M.D., and G. Dorner, M.D.

In a previous paper one of us (Weber) [10] described the case of a young man, aged 22, with congenital heart disease, great cyanosis, and extreme secondary polycythæmia (polyglobuly)—namely, over 10,000,000 red cells to the cubic millimetre of blood. Evidence was furnished in support of the modern doctrine that the excess in the number of red blood corpuscles in such cases was largely of a compensatory (conservative) nature; that it was a manifestation of the attempt on the part of the bone-marrow to make up for imperfect oxygenation of the blood and tissues of the body by a numerical increase of the red cells—that is to say, of the oxygen-carriers of the blood; that it represented, in fact, a vital compensatory reaction analogous to the increase of the polymorphonuclear leucocytes in the blood, consequent on streptococcal invasions, &c. It was furthermore pointed out that the figures obtained by actual blood-counts might make one under-estimate rather than over-estimate the total numerical excess of erythrocytes in the body, for there was considerable evidence indicating that when, in chronic cardiac cases, the erythrocyte-count per cubic millimetre of blood was above the normal (relative polycythæmia) the total volume of blood in the whole body was likewise excessive, a supposition confirmed by the congested appearance of the ears, lips, nose, tongue, and retinæ in many cases.

In the present case we have been able to obtain additional evidence (pointing to the same conclusions) by means of the estimation of the total hæmoglobin and total blood-volume in the body by Haldane and Lorrain Smith's carbon monoxide method. As concentration of the blood resulting from delayed circulation (stasis) in the capillaries might partly account for the polycythæmia in chronic cardiac cases, we have in

the present case attempted to measure (as was proposed in Dr. Weber's paper already referred to) the degree of any such blood concentration (if present) by estimating the total solid-residue in the patient's blood-serum, just as Weintraud and Senator estimated it in cases of so-called "splenomegalic polycythæmia" or "erythræmia."[1]

It has been suggested by Bence, von Koranyi, Mohr, Lommel,[2] and others, and quite recently again by E. C. Seufert,[3] that the excess of red blood corpuscles in cases of splenomegalic polycythæmia (erythræmia) may be accounted for as a compensatory vital reaction on the supposition that the hæmoglobin is defective in quality in such a way as to lower its capacity for taking up oxygen. Similarly it might be suggested that a lowered oxygen-capacity of the hæmoglobin is the real cause of polycythæmia when this is met with in cases of congenital (and acquired) heart disease. There is, however, no evidence that the oxygen-capacity of the hæmoglobin is abnormally low or abnormally high in either group of cases, unless Mohr's observation be correct that it was actually diminished in a case of congenital pulmonary stenosis with secondary polycythæmia, which was specially examined in this respect. In cases of polycythæmia with splenomegaly the oxygen-capacity of the hæmoglobin has never been found notably reduced. Thus in two cases of Lommel and one of Mohr it was found to be at the lowest level within normal limits, nor did cases referred to by Senator (1906) and Parkes Weber (two cases in which A. E. Boycott examined the oxygen-capacity of the blood) furnish any support to Bence's suggestion.[4] Of great importance are the observations of P. Morawitz and W. Röhmer [5] on the subject. They apparently find that the oxygen-capacity of the hæmoglobin does not differ in health or disease from the ordinary standard; even if in some conditions (affecting the salts in the blood) the oxygen is much more readily dissociated from the hæmoglobin than in others. Moreover we may add that in the rare cases of chronic methæmoglobinæmia and chronic sulph-hæmoglobinæmia (in which less

[1] *Vide* F. P. Weber, "Polycythæmia, Erythrocytosis, and Erythræmia," *Quart. Journ. Med.*, Oxford, 1908, ii, pp. 85-134. By analogy with the terms "leucocytosis" and "leukæmia" the term "erythrocytosis" is sometimes employed to signify a secondary ("reactive") increase of the red blood corpuscles so as to distinguish it from a condition ("erythræmia") in which the increase of the red cells is apparently due to a primary disorder of the erythrocyte-producing tissue of the body.

[2] These authors are quoted by F. P. Weber, *Quart. Journ. Med.*, loc. cit., p. 113.

[3] E. C. Seufert, *Amer. Journ. Med. Sci.*, Philad., 1910, cxl, p. 827. Seufert assumes, as *causa causans* of erythræmia, some deterioration in the quality of the hæmoglobin.

[4] Cases quoted by F. P. Weber, *Quart. Journ. Med.*, loc. cit., p. 114.

oxygen than normally can be taken up by the red corpuscles) secondary polycythæmia has not been noted.

The patient in the present case, M. L., aged 29, is an intelligent young man of Jewish parentage, a French polisher by trade, who first came under observation on account of temporary bronchitic symptoms. In spite of his congenital heart disease (see later), and the lividity, polycythæmia, &c., connected with it, he has usually enjoyed good health. He has great cyanosis of the lips, tongue, ears, nose, fingers, and toes; the cyanosis varies in degree from time to time, and is increased by muscular exercise; it does not seem to be markedly lessened by oxygen inhalation. There is a tendency to epistaxis, and there is decided "clubbing" of the fingers and toes. A skiagram of the hands shows the absence of any osteo-arthropathy; the phalangeal bones appear normal. By percussion and Röntgen ray examination the heart is found to be slightly enlarged to the right, the cardiac dullness reaching one finger-breadth to the right of the sternum. There is a rather loud systolic murmur, best heard over the second and third left intercostal spaces, close to the left border of the sternum, doubtless due to pulmonary stenosis. From what has been found in similar cases it is highly probable that in addition to the pulmonary stenosis there is a considerable defect in the interventricular septum, but of this we have no certain physical signs. Beyond these points there is nothing special to be noted in regard to the examination of the thorax and abdomen. The liver and spleen cannot be felt and are apparently not enlarged. Brachial systolic blood-pressure, about 100 mm. Hg. Examination of the urine shows nothing abnormal except that there is intermittent albuminuria of the orthostatic type. The urine passed immediately on getting out of bed in the morning is free from albumin, whereas, that passed later on yields a more or less thick cloud of albumin; but when microscopically examined it was free from tube-casts. There is no sexual or other form of infantilism. As in cases of "splenomegalic polycythæmia" ("erythræmia") the conjunctivæ tend to be suffused owing to vascular engorgement, and by ophthalmoscopic examination the retinal veins are seen to be distended. In January, 1910, a retinal hæmorrhage at the lower part of the left optic disk was noted.

### Blood Examination.

Red cells (capillary blood), 10,110,000 per cubic millimetre of blood; white cells, 10,275 per cubic millimetre of blood; hæmoglobin, 200 per

cent. by Sahli's method, 180 per cent. (on a later occasion) by Haldane's method. The blood is so "thick" that it is relatively difficult to suck it up into a capillary tube; when the fresh blood has been centrifugalized in a cylindrical tube about nine-tenths instead of the normal one-half of the column are taken up by the corpuscular layer. A differential count of 500 white corpuscles (made in September, 1910) gave: polymorphonuclear leucocytes 73 per cent., small lymphocytes 19·8 per cent., large lymphocytes 5·2 per cent., transitionals 1 per cent., eosinophiles 0·6 per cent., mast-cells 0·4 per cent; the red corpuscles in the blood-film showed nothing abnormal excepting that three nucleated red corpuscles (normoblasts) were seen during the count of 500 white cells.

The viscosity of the blood as estimated (at 20° C.) by Determann's clinical viscosimeter[1] was found to be 35·9 times that of water (at 20° C.)—that is to say, very greatly in excess of the normal. The coagulability of the blood was less than that of normal blood, the coagulation time, as measured by Sir A. E. Wright's coagulometer, being fifteen minutes.[2] The resistance of the blood towards hæmolysis, as tested by the addition of the washed red corpuscles to graduated hypotonic salt solutions, appeared to be rather below the normal standard; very slight hæmolysis was observed when the washed red cells were added to a 0·72 per cent. aqueous solution of sodium chloride, and was complete with a solution of 0·54 per cent.

Specific gravity of the blood (pyknometer method), 1·086; specific gravity of the blood-serum (pyknometer method), 1·036; dry residue of the blood, 29·4 per cent.; dry residue of the blood-serum (only ½ grm. serum was obtained, which, owing to slight hæmolysis, was coloured red with hæmoglobin), 10·38 per cent.

On September 10, 1910, Dr. J. S. Haldane and Dr. C. Gordon Douglas kindly estimated the patient's total oxygen-capacity (or rather the oxygen-capacity of the total hæmoglobin of his blood) and his

[1] Determann, *Verhandl. d. Kongresses f. inn. Med.*, Wiesb., 1907, xxiv, p. 533. E. Münzer and F. Bloch, in their work "Experimentelle Beiträge sur Kritik der Viskositätsbestimmungsmethoden," *Zeitschr. f. exp. Path. u. Therap.*, Berl., 1910, vii, pp. 174-184, find that Determann's clinical viscosimeter gives too high values. Anyhow, in our present case, the viscosity is, beyond all doubt, excessive.

[2] In cases of erythræmia (splenomegalic polycythæmia) and polycythæmia secondary to cardio-pulmonary affections, Parkes Weber has observed that the coagulation of the blood seems to be delayed, as if diminution of coagulability were compensatory (in the modern teleological sense) to great increase of blood-viscosity in these cases (the increased tendency to thrombosis, connected with the excessive blood-viscosity and delayed capillary circulation, being to some extent neutralized by the diminution of blood-coagulability). Dr. G. R. Ward kindly informs us that by Blair Bell's method, in a case of erythræmia, he found the calcium-index of the blood was 0·8, that is to say, rather low.

total blood-volume by Haldane and Lorrain Smith's carbon monoxide method [3]. For their investigation and the following report (by Dr. Douglas) we take this opportunity of thanking them. Precautions were taken to guard against a possible source of fallacy (in the method in question) which may arise if insufficient time is allowed for the even distribution of the carbon monoxide through the blood before taking the samples of blood for analysis. The carbon monoxide was given at a slow rate (thirty and a half minutes were occupied by this) by means of the original apparatus employed by Haldane and Lorrain Smith, and the patient was required to breathe for another four minutes into this apparatus. Then he breathed for seventeen minutes into a closed respiration apparatus with an effective volume of 15 litres containing pure air, the oxygen in this being kept constant automatically by means of an arrangement similar to that devised by Regnault and Reiset. The amount of carbon monoxide lost by the patient into this closed space was sufficiently small to be neglected. During the experiment 239 c.c. of carbon monoxide (measured at 0° C. and 760 mm. Hg. pressure) were administered to the patient. Two samples of blood were taken from the finger, one eleven and a half minutes before the end of the experiment and the other at the end of the experiment. The degree to which the blood was saturated with carbon monoxide—namely, 11·9 per cent.—was the same in the two samples, and there can therefore be little doubt that the time allowed was long enough for the gas to become evenly distributed through the blood. The total carbon monoxide (or oxygen) capacity of the subject (or rather of the hæmoglobin in his blood) was therefore $\frac{239}{11·9} \times 100 = 2{,}010$ c.c. Since the percentage of hæmoglobin by Haldane's hæmoglobinometer was 180, corresponding to an oxygen (or carbon monoxide) capacity of 33·3 per cent., the volume of the patient's blood was $\frac{2010}{33·3} \times 100 = 6{,}040$ c.c. The patient's weight without clothes was 7 st. 4 lb., or 46 kilos, and he had therefore 4·37 c.c. of oxygen capacity (in his hæmoglobin) and 13·13 c.c. of blood per 100 grm. of body-weight. Haldane and Lorrain Smith's original results for a series of fourteen normal men were 0·98 c.c. of oxygen capacity and 4·78 c.c. of blood per 100 grm. of body-weight. Plesch [8] gives 1·12 c.c. of oxygen-capacity and 4·78 c.c. of blood, and Oerum [6] gives 5·2 c.c. of blood. It is doubtful (Dr. Douglas writes us) whether the fallacy alluded to above was excluded in all these cases, since more recent observations[1] have shown in three perfectly normal persons an

[1] *See* Boycott and Douglas, *Guy's Hosp. Reports*, 1908, lxii, p. 157; and C. G. Douglas, *Journ. of Physiol.*, 1910, xl, p. 471.

oxygen-capacity of about 1·4 c.c. and a blood-volume of about 7·5 c.c. per 100 grm. of body-weight. In the present case, however, there can be no doubt that both the oxygen-capacity and the blood-volume per 100 grm. of body-weight are very much greater (especially, of course, the former) than those in normal persons, though on account of the difficulty just mentioned the values cannot at present be definitely expressed as multiples of normal values.

In regard to these remarks of Dr. Douglas it may likewise be noted that according to the old idea that the total blood in the whole human body averages about one-thirteenth of the body-weight (about 7·7 grm. blood per 100 grm. body-weight), the normal weight of the blood in a person of the present patient's body-weight (46 kilos.) should be about 3,538½ grm.

## Remarks.

The present case may be regarded as an extreme example of cyanosis and polycythæmia[1] in an adult secondary to congenital heart disease. It shows that in these cases, as in "splenomegalic polycythæmia" ("erythræmia"), not only the number of red corpuscles and the amount of hæmoglobin per cubic millimetre of blood are greatly above the normal, but so also are the amount of hæmoglobin (as measured by the oxygen-capacity) and the volume of blood per 100 grm. of body-weight; there is, in fact, a condition of true plethora ("polyhæmia") present, so that the degree of absolute polycythæmia is much greater even than the degree of relative polycythæmia.

The polycythæmia in these cases can therefore only to a very limited extent, if at all, be accounted for by inspissation of the blood owing to blood-stasis in the capillaries. But it must, as in "splenomegalic polycythæmia" ("erythræmia"), be almost entirely due to an increased formation of red blood cells in the bone-marrow. In the present case the great hæmopoietic activity of the bone-marrow is confirmed by the rather large percentage (thought it is within normal limits) of the

[1] F. Parkes Weber, in the *Edin. Med. Journ.* (1909, New Series, ii, p. 18) gave references to fourteen cases of congenital pulmonary stenosis, or more complicated forms of congenital heart disease, in which blood-counts showed that there were over 8,000,000 red cells in the cubic millimetre of blood. In the case he himself described, a man aged 22, the red cells were 10,300,000 in the cubic millimetre. In cases of congenital heart disease published since then, counts of over 9,000,000 red cells have been recorded by C. A. Fife (*Proc. Philad. Pediat. Soc.*, December 14, 1909; *Brit. Journ. Child. Dis.*, Lond., 1910, vii, p. 24); by T. R. Whipham (*Proc. Roy. Soc. Med.*, Section for Diseases in Children, 1910, iii, p. 149, and *ibid.*, 1911, iv, p. 3); and by W. Bie and W. Maar (*Deutsch. Arch. f. klin. Med.*, 1910, xcix, p. 382).

polymorphonuclear leucocytes (73 per cent. of the white cells), and by the presence of a few nucleated red cells in the circulating blood.

That polycythæmia in chronic cardiac cases is not merely "relative polycythæmia," that, in fact, it is not merely due to concentration of the blood owing to delayed circulation (blood-stasis) in the capillaries, has been to some extent shown by the numerical increase of the red cells being found not only in the blood from capillaries and veins, but likewise in that from the arteries. Thus, G. A. Gibson [2], on one occasion in a boy, aged 16, supposed to be suffering from mediastinal pericarditis, found the erythrocytes in the arterial blood to be 7,000,000; in the capillary blood 8,500,000; and in the blood from a vein 10,000,000.[1] Palleri and Mergari [7], in a case of congenital pulmonary stenosis, counted the red cells in capillary blood from the finger at 6,650,000; in venous blood from a vein in the arm at 6,400,000; and in arterial blood from the temporal artery at 5,950,000.

The dry residue of the blood (29·4 per cent.) and of the blood-serum (10·38 per cent.) in our present case may be compared with the following data given by W. Bie and W. Maar [1] in their account of a case (man, aged 19) of cyanosis and polycythæmia (6,500,000 to over 10,000,000 red cells in the cubic millimetre of blood) secondary to congenital heart disease: Dry residue of blood (from a vein), 25·41 to 25·45 per cent.; dry residue of blood-serum, 8·87 to 8·88 per cent.

As approximate values for normal persons the following figures may be given:—[2]

| | |
|---|---|
| Dry residue of blood ... ... ... | 20·3 to 22·8 per cent. |
| Dry residue of blood-serum ... ... | 9·21 to 10·50 per cent. |
| Albumin in blood... ... ... ... | 22·6 per cent. (von Jaksch). |
| Albumin in blood-serum ... ... ... | 8·8 per cent. (von Jaksch). |
| Specific gravity of blood ... ... ... | About 1·060. |
| Specific gravity of blood-serum ... ... | 1·028 to 1·031. |

The excess of red corpuscles accounts, of course, for the rather large percentage of dry residue and the rather high specific gravity in

[1] These figures may be compared with the following figures obtained by Dr. Gibson in a case of splenomegalic polycythæmia (erythræmia); see his remarks made at Sheffield on the subject, *Brit. Med. Journ.*, 1908, ii, p. 1155:—

| | Artery | Capillary | Vein |
|---|---|---|---|
| Erythrocytes per cubic millimetre of blood ... | 11,270,000 | 13,490,000 | 10,970,000 |
| Leucocytes ,, ,, ,, ... | 34,800 | 21,800 | 34,000 |

The arterial and venous blood-counts in two or three other cases of polycythæmia are quoted by F. P. Weber, *Quart. Journ. Med*, loc. cit., p. 93.

[2] Compare also the figures quoted in H. Vierordt's "Anatomische, physiologische, und physikalische Daten und Tabellen," third edition, Jena, 1906, pp. 191-203.

polycythæmic blood as a whole, but it is with the corresponding figures for the blood-serum that we are specially concerned. The fact that these latter are not much, or not at all, above normal limits shows that the blood-plasma in polycythæmia secondary to congenital heart disease (as also in " splenomegalic polycythæmia " or "erythræmia ") is not greatly, if at all, concentrated. In other words, it proves that the polycythæmia cannot be accounted for by concentration of the blood as a whole. In our own case, indeed, the figures show that the blood-plasma may have been very slightly concentrated,[1] probably as a result of capillary blood-stasis. (It may be noted in this connexion that " clubbing " of the fingers and toes was not present in Bie and Maar's case, but was in our case.)

The albumin in the blood and blood-serum has not, as far as we know, been estimated in cases of polycythæmia secondary to cardiac disease, but in cases of erythræmia, Weintraud and Senator both found the percentage of albumin in the blood-serum below the normal, and in an unpublished case of erythræmia, G. Dorner estimated it at 7·38 to 7·55 per cent. (that is, below the normal according to von Jaksch).

Anyhow, we have now decided evidence that the chronic polycythæmia of congenital heart disease is, like that of " erythræmia," associated with excess in the total blood-volume of the body (" plethora vera," " polyhæmia "), and with excessive formation of red blood corpuscles in the bone-marrow. This is, doubtless, also true of the polycythæmia sometimes associated with acquired heart disease. Thus, Lorrain Smith and H. L. M'Kisack [9], in the case of a boy, aged 12, suffering from adherent pericardium and chronic cyanosis, not only showed that the proportion of red cells to blood-plasma was excessive (relative polycythæmia), but also demonstrated by the carbon monoxide method that the total volume of blood was far beyond the normal standard, so that there was undoubtedly a condition of true plethora present. It is almost certain that in all chronic cardiac cases, whenever the erythrocyte count per cubic millimetre of blood is above the normal (relative polycythæmia), the total volume of blood in the whole body is likewise excessive. This is, indeed, what one would expect from the congested appearance in some patients of the face, lips, tongue, and retinæ (as seen by ophthalmoscopic examination) during life, and the hyperæmic condition of their viscera as seen at post-mortem examinations. It is also probable that the total blood-volume may be excessive

[1] The blood-serum used in our case, as already mentioned, contained a little hæmoglobin.

in many chronic cardiac cases even when a blood-count shows absence of relative polycythæmia.

E. Weil [11], of Paris, was the first to show that the secondary polycythæmia of heart disease is associated with an actual erythroblastic reaction in the bone-marrow. In 1901, in post-mortem examinations on two children with congenital stenosis of the pulmonary orifice of the heart and chronic cyanosis, he found that there was red transformation of the bone-marrow, microscopic sections of which showed that all traces of the normal fatty tissue had disappeared. His results have been confirmed by Mackey and others. In 1907, L. G. J. Mackey [4] examined microscopic sections made by J. Miller from the bone-marrow of a case similar to those of Weil, and obtained similar results to Weil. The polycythæmia of congenital heart disease and chronic cardiac insufficiency is therefore due to great erythroblastic activity of the bone-marrow, and represents a true hyperplasia of the erythrocytes and of the erythrocyte-forming tissues of the body, which is, in fact, analogous to the myocardial hypertrophy found in conditions throwing abnormal work on the whole or a portion of the musculature of the heart.

Orthostatic albuminuria seems not to have been observed in most cases of congenital heart disease, but it was very marked in the present patient[1] and in a young man, aged 22, whose case was previously described by one of us [10]. We should expect to find it in other cases of congenital heart disease if accompanied by chronic cyanosis and extreme polycythæmia; in this connexion, as suggested to us by Dr. A. E. Garrod, the calcium-content of the blood might be estimated in similar future cases.

It is worth while drawing attention to the fact that the patient whose case we are now considering takes a good deal of open-air exercise, and though it may tend temporarily to increase his cyanosis, he declares that he feels much better with exercise than without it. He thinks that an active, industrious life suits him better than a lazy one.

The secondary polycythæmia in cases of congenital heart disease is seldom, if ever, rivalled in degree by the secondary polycythæmia which sometimes, as is well known, occurs in chronic acquired valvular affections (of the mitral valve) and in adherent pericardium. It is more nearly rivalled by the marked secondary polycythæmia occasionally associated with late stages of pulmonary emphysema, chronic bronchitis,

[1] The orthostatic albuminuria was apparently not a family peculiarity.

asthma, old bilateral complete pleuritic adhesion, chronic interstitial pneumonia and pulmonary fibrosis. The polycythæmia in all such cases differs from the polycythæmia (possibly of primary myelogenous origin) associated with chronic splenomegaly, which has been termed "erythræmia,"[1] by the not infrequent absence of real cyanosis in erythræmia, especially in its early stages.

What prognostic significance can be attached to the secondary polycythæmia in cardiac cases? In answer to this question we need only repeat what one of us has previously written. Just as hypertrophy of the walls of the heart is useful in so far as it compensates for mechanical defects in the valvular apparatus, so also is polycythæmia useful in so far as it compensates for difficulties in the proper oxygenation of the blood and tissues of the body. But just as in cardiac valvular disease great hypertrophy of the heart indicates some grave defect in the valvular mechanism, so also an extreme increase in the number of erythrocytes in the blood points to there being great impairment of the normal process of oxygenation of the body.

REFERENCES.

[1] Bie, W., and Maar. *Deutsch. Arch. f. klin. Med.*, Leipz., 1910, xcix, p. 382.
[2] Gibson, G. A. *Lancet*, 1895, i, p. 24.
[3] Haldane and Lorrain Smith. *Journ. of Physiol.* 1900, xxv, p. 331.
[4] Mackey, L. G. J. *Birmingham Med. Rev.*, 1907, x, pp. 113-177.
[5] Morawitz, P., and Röhmer, W. "Ueber die Sauerstoffversorgung bei Anämien," *Deutsch. Arch. f. klin. Med.*, 1908, xciv, pp. 529 *et seq.*
[6] Oerum. *Deutsch. Arch. f. klin. Med.*, 1908, xciii, p. 356.
[7] Palleri and Mergari, quoted by Guiserne. "Des Polyglobulies," *Thèse de Par.*, 1902.
[8] Plesch. *Zeitschr. f. exp. Path. u. Therap.*, Berl., 1909, vi, p. 380.
[9] Smith, Lorrain, and M'Kisack. *Trans. Path. Soc. Lond.*, 1902, liii, p. 136.
[10] Weber, F. P. "A Case of Congenital Heart Disease, with Extreme Secondary Polycythæmia and Orthostatic Albuminuria," *Edin. Med. Journ.*, 1909, New Series, ii, p. 18.
[11] Weil, E. *Compt. rend. Soc. de Biol.*, Par., 1901, liii, p. 713.

[1] *Vide* F. P. Weber, *Quart. Journ. Med.*, Oxford, 1908, ii, pp. 85-134.

## DISCUSSION.

Dr. GARROD suggested that the presence of orthostatic albuminuria might be connected with the delayed coagulability of the blood observed in this case. He further suggested that Dr. Parkes Weber and Dr. Dorner's conclusions might be summed up as tending to show that the polycythæmia of congenital heart disease is a compensatory hypertrophy of the blood.

Dr. JAMES GALLOWAY remarked on the interest of Dr. Parkes Weber's communication. He inquired whether examinations of the blood had been made, not only of the blood in the capillaries of the extremities, but in the blood from larger vessels—from the veins, or possibly from arteries.

Dr. G. A. SUTHERLAND said the theory advanced was very plausible, and he would criticize only one point. Dr. Weber said that the tremendous increase of red cells in the disease was purely physiological—i.e., an effort on the part of Nature to overcome the difficulty of the pulmonary circulation, probably a difficulty in the aeration of the blood. If the red cells had doubled in number and the serum was correspondingly diminished in amount, he thought there must be a corresponding loss of function of the blood-plasma, and many people regarded the blood-plasma as quite as important as the blood-cells. He asked whether there was any real diminution in the quantity of the serum.

Dr. PARKES WEBER, in reply, said that he agreed that the change in the blood and bone-marrow in these cases was hypertrophy, or rather hyperplasia, of the red blood-cells. There were two kinds of hyperplasia of erythrocytes: first, that met with in cases of so-called erythræmia, no cause for which was known, and which at present might be regarded as a primary hyperplasia of the erythrocytes and erythrocyte-forming tissue; secondly, there was the form met with in some cases of congenital heart disease, and (in fewer cases) of acquired heart disease, which he regarded as a secondary hyperplasia, and (from the modern teleological point of view) as the expression of a vital compensatory reaction. In circulatory disturbances connected with diseases of the heart and lungs there were two compensatory reactions which might occur. One was hypertrophy of part or all of the musculature of the heart, which increased the driving power of the circulation. The other was the "polycythæmic reaction," met with in the present patient, the purpose of which was to increase the oxygen-carrying power of the blood; practically the only way to do that was to increase the amount of hæmoglobin in the blood by increasing the number of the red corpuscles. The total volume of the blood was necessarily also increased, for otherwise there would not be enough room for the blood-plasma, which was essential. The present patient probably had as much blood-plasma in his total circulating blood as anybody else. He thought that secondary polycythæmia was met with only in those cardiac or

cardio-pulmonary cases in which there was difficulty in providing the proper amount of oxygen. Therefore it occurred especially in some forms of congenital heart disease and in old cases of asthma, chronic bronchitis and emphysema, and in fibrosis of the lungs. He thought that more consideration ought to be given to the question of secondary ("reactive") polycythæmia in the text-books. Secondary polycythæmia was sometimes called "erythrocytosis" to distinguish it from "erythræmia" (supposed primary polycythæmia), just as a secondary ("reactive") increase in the white corpuscles was called leucocytosis to distinguish it from leukæmia.

# Clinical Section.

February 10, 1911.

Sir A. PEARCE GOULD, K.C.V.O., President of the Section, in the Chair.

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## Mollities Ossium of Forty-five Years' Duration.

By H. D. ROLLESTON, M.D., and C. H. S. TAYLOR, M.B.

A SINGLE woman, aged 58, for years a patient of Dr. H. Hollis in the Wellingborough Workhouse, has been bedridden for forty-four years on account of inability to walk and bony deformities which at first suggested rickets, but, as shown by X-rays, resemble those of mollities ossium.

History: She was not strong as a child, and did not begin to walk until 3 years of age, thus suggesting rickets. Between her fourth and fifth years the right knee began to bend outwards, but until 13 years of age she was able walk, though clumsily. At the age of 11 she had whooping-cough, and at 13 " inflammation of the bowels." Her mother connected the osseous changes with the whooping-cough. At the age of 13 her strength began to fail, walking tired her, and she took to bed, where she has remained since. She ached all over, and her teeth began to decay and were all gone when she was 37. Since the onset the bony deformity has gradually increased, but was most progressive at the time she first took to bed. There is no history of any bony fracture, but she had pain in the left lower ribs at the age of 13. Menstruation began at 15 and stopped at 45. Pubic hair appeared before the age of 15.

Physical condition: When held up—for she cannot stand—her height is 45 in. The forehead is prominent, and the circumference of the head is 21½ in. The rotation of the head is somewhat restricted and the sternomastoids are shortened and contracted. The distance from the suprasternal notch to the symphysis pubis is 14½ in. The spinal column shows a continuous curve forwards in the dorsal and cervical regions, and there is scoliosis to the right in the dorsal region. The thorax shows lateral flattening, and the respiratory movements are mainly abdominal. There is considerable thickening in the outer curvature of each clavicle. The upper extremities are more deformed than the lower, and in this connexion it may be mentioned that she has never used crutches. The right upper extremity is more affected than the left. Each humerus shows an antero-external curvature which is most marked in the upper third; the muscles are stretched across the curves formed by the humeri. The movements at the shoulder-joints, especially the right, are somewhat restricted. The right forearm cannot be completely extended, but flexion is perfect. The right radius is twisted round the ulna at its lower end, and supination and pronation are restricted. As a result of the deformity of the humeri the upper limbs have an appearance of rhizomelic micromelia. At the wrists extension is prevented, but flexion is good. The hands are fairly normal and can be used for sewing. There is no clubbing of the fingers. The patient cannot stand, and when supported rests on the toes; when the heels are placed on the ground she collapses towards the left. The thighs can be flexed at the hip to a right angle, but abduction and adduction are limited. The femora, especially the right femur, are curved with the convexity forwards and slightly outwards. At the knee-joints the tibiæ form an obtuse angle with the femora, thus to some extent resembling Mr. Clinton Dent's case of "double displacement backwards of the tibiæ, with deformity of the long bones and arrested development."[1] To the outer side of the right ligamentum patellæ there is what appears to be a loose body in the joint. The legs cannot be completely extended at the knees, but can be flexed fairly well. The tibiæ and fibulæ present a concavity to the right. The left ankle can be extended to a considerable degree, but cannot be flexed to more than a right angle; the movements of the right ankle are not quite so good.

The patient does not show any evidence of infantilism and is normal mentally. The thyroid cannot be felt. The urine contains a trace of

[1] Dent, *Trans. Path. Soc.*, Lond., 1882, xxxiii, 250.

albumin. The maximum systolic arterial blood-pressure is 100 mm. Hg.; the viscera are otherwise normal. Weight, 4 st. 11 lb. Blood count: February 6, 1911—Red cells, 4,045,000 per cubic millimetre; white cells, 10,400 per cubic millimetre; hæmoglobin, 95 per cent.; colour index, 1·18; polymorphonuclear cells, 75 per cent.; lymphocytes, 23 per cent.; mononuclear cells, 2 per cent.; eosinophile and mast cells, none seen; red cells, normal.

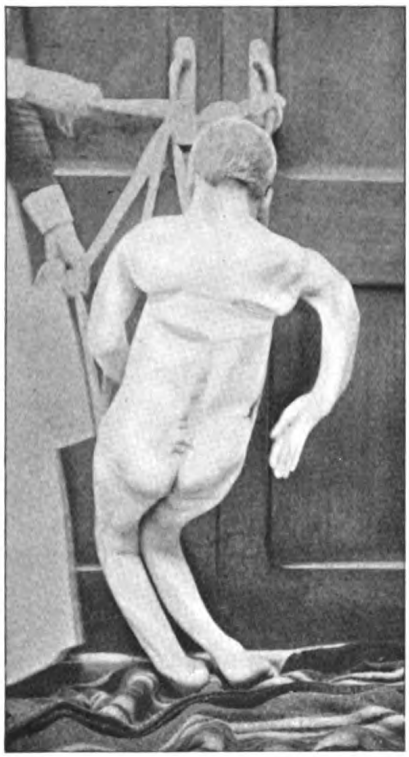

FIG. 1.

Mollities ossium of forty-five years' duration.

Dr. Allpress Simmons has kindly provided the following account of the skiagraphic appearances :—

The bones generally are very translucent and light in texture; the shafts of the long bones are thin, the compact layer narrow, and the central canal disproportionately wide. The extremities are expanded in proportion to the shafts, very light in texture, and do not appear more

opaque at the periphery as compared with the centre. This absence of the compact layer in some cases extends from the extremities for some distance along the shafts. The articular surfaces generally are clean cut and normal, and there is no lipping of the articular edges.

Head and trunk: The skull-bones, as far as seen on skiagram, are of normal thickness; the base of the skull appears to project abnormally upwards into the cranial cavity. The jaws are edentulous except for an unerupted upper back tooth. The bodies of the vertebræ are vertically compressed, and the absence of definite light spaces between them suggests either that intervertebral fibro-cartilages are very thin or that they are infiltrated with lime salts, or both. There is a slight forward convexity of the upper cervical spine: there are four lateral curves in the spine—namely, a convexity to the right opposite first dorsal vertebra; to the left opposite seventh and eighth dorsal vertebræ; to the right opposite the eleventh rib, and to the left in lower lumbar region. The pelvis is compressed from above down opposite the sacral promontory and laterally upwards and inwards on both sides opposite the hip-joints, its cavity being thus converted into a sharp trefoil shape (fig. 2). The left ribs look fairly normal. The fourth, fifth, sixth and seventh right ribs have a sharp inward convexity at about mid-distance, with a boss at that point strongly suggestive of a repaired fracture.

Left upper extremity: The clavicle is fairly normal, as is also the scapula. The humerus has a general slight inward convexity and has fusiform thickenings at about the junction of the upper and middle and of the middle and lower thirds, and at these points the ordinarily extra thin compact layer becomes abnormally thick. The left radius and ulna are fairly normal in appearance.

Right upper extremity: The right clavicle has a bossy expansion at about the junction of middle and outer thirds. The right scapula has its axillary border abnormally thick, especially at a point about two-thirds down. The right humerus has a complicated U-shaped bend at about the junction of the middle and lower thirds, the general direction of which is concave, inwards and forwards. The compact layer is somewhat thicker on the convexity than on the concavity of this bend, and there is no sign at any of the bends in or bosses on the bones of any sustaining buttresses in the concavities of the bends, or of any threatening or old fractures, with the exception of the ribs mentioned above. The right radius and ulna have a U-shaped bend with the concavity inwards at about the mid-point (fig. 3).

Hands: No marked deformity of bones of hands.

Left Femur: The neck of the left femur is short and thick, and its upper surface is encroached upon by the expanded and bossy great trochanter; the lesser trochanter is hooked upwards and inwards. The shaft has a general outward convexity: the lower end of the shaft is sharply implanted into the expanded condylar portion, very much like

FIG. 2.

Skiagram of pelvis and hip-joints from behind.

the stalk of a flower. The double contour seen on the inner aspect of the left femur is caused by a muscle shadow, and is not due to bone. The neck of the right femur is somewhat longer than that of the left, and its upper surface is encroached upon by the expanded and bossy great trochanter, as on the left side; the lesser trochanter also has an

upward hook. There is a very well marked inward bend at the junction of the head and neck. The shaft of the right femur has a double lateral curve, of which the upper is curved outwards, the centre of curvature

FIG. 3.
Skiagram of right arm and forearm from front.

being at about the junction of the upper and middle thirds, while the lower two-thirds of the bone have a general inward convexity.

Left Leg: The left fibula is straight; the left tibia has a marked forward convexity with centre of curvature at about the junction of mid and lower thirds. The right tibia and fibula are fairly straight,

having only a slight forward convexity. Ankle-joints and joints generally of the feet look normal, the only marked deformity of bone being some flattening of the inferior surface of the right calcaneum.

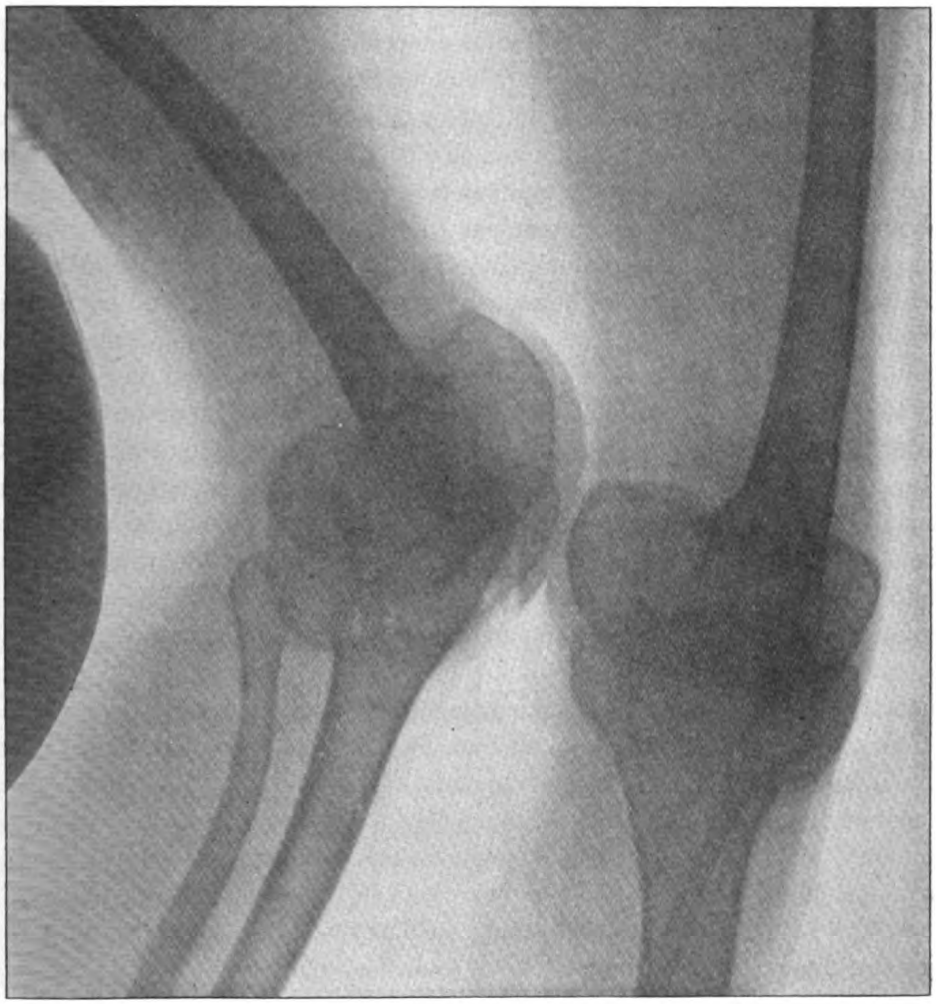

FIG. 4.

Skiagram of knees from front.

To sum up, the deformities generally suggest that the bones are slightly plastic, and they bend therefore in proportion to the stresses upon them. Thus the long bones, which are subject to unequal stresses,

show most bending; the pelvis shows the effects of weight; while the hands and feet, which have few internal stresses, show hardly any deformity; and the skull, which has practically no muscular pull upon it, retains its shape except where its weight causes it to sag, as it were, around its base.

*Remarks.*—When first seen the condition was thought, on the bases of the appearances and history, to show the results of late or recrudescent rickets. Dr. Allpress Simmons's X-ray examination showed that the changes characteristic of rickets were absent and that the appearances pointed to mollities ossium. As we were uncertain about the occurrence of real arrest in mollities ossium, which such a long duration suggested, we obtained the help of Mr. Dent, who kindly referred us to the account of his case already mentioned, and also to his unpublished Hunterian lecture at the Royal College of Surgeons in 1905. In his first case, published in 1882, a condition very similar to that in our patient followed scarlet fever; in this paper he mentions records and specimens of cure or arrest of mollities ossium. In his Hunterian lecture he explains this osseous softening as a result of the action of pathogenic organisms on the bones; he also refers to four or five cases under his observation in which softening of the skeleton, followed after a long interval by recovery of the rigidity of the bones—but in a condition of great deformity—apparently dated from an attack of whooping-cough. He quotes Siegert, who collected four cases of mollities ossium occurring at the ages of 10 years, 10 years, 13 years, and 16 years in children, who had all had, but recovered from, rickets. Our case, which appears to belong to this category, raises the interesting question if many or most of these cases formerly recorded as "late rickets" are really examples of osseous softening due to some microbic invasion of the skeleton and not to rickets in the strict sense. Siegert's cases and our case suggest that ordinary rickets, by damaging the skeleton, may favour the onset of mollities ossium.

## Case of Imperfect Osteogenesis.

By FREDERICK J. POYNTON, M.D.

F. S. L., FEMALE, aged 8, the second of four children; the other three have no signs of the condition. The parents are German Jews. The child has been under observation for six years.

History: Soft bones at birth; fracture at fourteen days. From that time there have been fractures of all the long bones at intervals, usually results of slight injuries. There have never been well-marked evidences of rickets or congenital syphilis. The child is bright and intelligent, but has never been able to walk.

The course of the case is in accord with that usually found in the disease, but there are a few interesting points. One of these is that the disease seemed to be arrested some two years ago, and as the child was hopelessly crippled by the terrible distortion of the lower extremities, both legs were put in excellent position by Mr. Kellock. Union followed, and the limbs were much improved. The present condition illustrates the ultimate result. I believe there is, in this case, as in some others I have had under my care, an element of neglect by the parents, and no real pains were taken to keep the child's limbs from injury. A third point was the history of the development of the lateral bosses on the skull. These followed a fall and commenced as large cephalhæmatomata. Prognathism is present. During the last twelve months the child has got thinner and there is slight pyrexia, which is apparently not infrequent in the disease. Many methods of treatment have been tried, but without any obvious result.

The salient deformities are: (1) Bosses immediately about the ears on either side; (2) prognathism; (3) diminution in the vertical and widening in the lateral and antero-posterior diameters of the chest; (4) spinal lordosis; (5) left clavicle, old fracture; (6) right humerus, radius and ulna, old fractures; (7) right femur fractured and bent; (8) right fibula and tibia fractured, the child's foot rests on its inner side upon the bed; (9) left femur, tibia, and fibula fractured and bent. All the long bones are exceedingly small.

## Case for Diagnosis: Imperfect Osteogenesis?

By FRANK KIDD, F.R.C.S.

F. S., AGED 7. Sent up by Dr. Aldridge, of Sheerness, to the London Hospital.

History: At the age of 3 the boy fell and broke his right femur, and was admitted to Chatham Hospital, where he remained seven and a half months. A large swelling developed at the site of the fracture, and a diagnosis of sarcoma was made, but the father refused operation, and took the boy to see Mr. Battle at St. Thomas's Hospital. The lower half of both legs became gradually bent into their present position. Two years ago the right forearm was broken by a fall. Two months ago the left upper arm was broken and set. When the splints were removed the present swelling was noted. Bottle-fed baby—Robinson's Patent Barley.

Family history: Four children in the family; two are healthy. One other boy had a leg amputated for a similar condition, and has had several fractures.

Physical examination: General condition excellent; nothing abnormal shown by the temperature chart. Urine acid—1020—no albumin, albumose, or sugar. Bones of skull and face, teeth, clavicles (?), ribs, sternum, and vertebræ appear to be healthy. Fontanelles closed. No rickety rosary. Shape of chest normal. Left humerus—Fusiform swelling at lower end of bone, of bony hardness. No pulsation or crackling to be felt in the swelling, which expands the bone equally all round. The fracture has united. Maximum circumference of swelling, 9½ in. The skiagram shows a fracture in the middle of the shaft and a mass of irregularly trabeculated new bone, between the fractured ends, under the periosteum of the shaft and in the flexor muscles in front, but a large part of the swelling throws no bony shadow, though it feels of bony hardness. The extreme lower end of the humerus shows an area of central resorption of bone extending an inch up the shaft. Left forearm—There is a bend in the middle of the radius and ulna. The skiagram seems to indicate an old fracture at this level. The radius and ulna throw very faint shadows on the plate, evidence of deficient ossification. Right forearm—Both bones are bent backwards, the radius about its middle, the ulna nearer its lower end. The skiagram

suggests that a fracture has occurred at these levels, with deposit of periosteal callus. Right femur—There is a fusiform swelling extending the whole length of the bone, which is of bony consistency, and does not pulsate. Maximum circumference, 11½ in. The skiagram shows that the whole shaft of the bone has been expanded, and the trabeculæ have been rearranged as a wide-meshed cancellous tissue, as though the bone were filled with numerous cysts. Right Femur—The skiagram shows that the shaft is bent outwards, and that at the lower end of the bone there is resorption of bony tissue with rearrangement of the trabeculæ as a wide-meshed, irregular network. This change is also to be seen in the lower epiphysis. The epiphysial line appears to be normal. In the upper end of the bone the normal lamellar arrangement is well shown. The appearance of the legs below the knees can be seen in the skiagrams. The tarsal bones show a cyst-like arrangement of the trabeculæ similar to that seen in the right femur, and to a less extent in small patches in the following positions: the lower epiphysis of the right fibula, the upper end of the left tibia, the upper end of the right radius, the lower end of the left femur, parts of the pelvic bones, the glenoid portion of the left scapula, the upper ends of each humerus and the bones around the left elbow-joint.

Course: The swellings have not altered in size during the three weeks the child has been under observation. The Wassermann reaction was negative. There was no evidence of congenital syphilis. There was no trace of albumoses in the urine.

The following statement of his family history has been written by an elder brother of the patient. This elder brother (W. S.) had his leg amputated for a condition similar to that from which the younger brother (F. S.) now suffers:—

"I am writing out the history of our family as far as I can. The first that I can remember is my mother's father, who has broken his right leg twice and the left leg once. He has also broken his arms twice, but it happened when he was young. The last time he broke his leg was about nine years ago; as far as we know it set right, but it has left him a little lame. He has not had anything happen to him since. My mother's brother has broken his legs about four times and his arms about twice each. His arms turned out all right and also his legs until five years ago, when swellings began to come in them. He was taken to Chatham Hospital and was treated as an out-patient; they told him it was caused through weak constitution. The last time he broke his leg was four years ago. He was then taken to Minster Infirmary (Isle of Sheppey). Since he has been there swellings have set in

in his legs, and he is still lying there. The rest of mother's family are all right and also my father's family. My mother broke her arm when she was about 8 years old, but that turned out all right. When she was 12 years old she fell and hurt her leg, and swelling set in in it; she could not walk upon it for about six months. When she began to walk the swelling began to go down, and it went on all right until about eight years ago, when the swelling set in again. She went to a doctor, who ordered her to hospital at once. She went to Chatham Hospital and they said it was cancer; they also said they could do nothing for her, only remove the leg to save her life. Mother consented and it was removed. She has never felt any effects of it since. Now when I was 3 years old I fell and broke my leg and a doctor in Sheerness put it in plaster of Paris. It became so swollen that the doctor removed the plaster and ordered me to hospital. My parents took me to Chatham Hospital, and they said I should have to have my leg off. My parents would not consent to that, so they took me to St. Thomas's Hospital to see whether they could do anything to cure me, but they said they could do nothing, only remove my leg, so my parents consented. I have broken my right arm four times and my left arm three times, but they have turned out successful. Five years ago I fell and hurt my other leg. My father took me to Chatham Hospital. They said they could do nothing, only remove it; my parents would not consent to this. After I came home I could not get about for two years, then I started to get on my crutches and have been walking on them ever since. My little brother Freddie has broken his arms six times; they have turned out all right except this last one. Four years ago he fell and broke his thigh. He was taken to Chatham Hospital, but they could do nothing, only remove it; my parents would not consent. They then took him to St. Thomas's Hospital. Dr. Battle did not say anything about the leg coming off; he said he was in hopes he would grow out of it. He has never walked on it since. That is all I can remember."

## DISCUSSION.

Dr. H. D. ROLLESTON said that osteogenesis and mollities ossium might bring about similar changes, namely, bending and fracture of the bones, but that the causal processes were different. Osteogenesis imperfecta was a congenital condition, and the fractures present at birth might be so numerous that prolonged existence was impossible. Mollities ossium was an acquired condition probably due to many factors, among which he wished to emphasize attenuated infections or the results of infections acting locally on the bones, though he could not quote any proof of bacterial infection of bone in mollities ossium. Recently Poncet and Leriche[1] had described mollities ossium of tuberculous origin. Osteogenesis imperfecta was difficult to separate from infantile mollities ossium, and some authorities considered that they were the same. He believed

[1] Poncet et Leriche, *Gaz. des. hóp. de Paris*, 1911, lxxxiv, p. 3.

that mollities ossium occurred in children, and that in it the bones became first extremely soft and bent, and that fracture was secondary; whereas in osteogenesis imperfecta, in which the bones were extremely friable, fractures occurred first and deformities secondarily. But he admitted that some cases described as osteogenesis imperfecta showed both fractures and bending of the bones.

In Mr. Kidd's remarkable case the skiagram of the femur recalled the condition described by Mr. B. Pitts and Mr. Shattock[1] as non-calcifying plastic osteitis, and certainly suggested the hyperostosis in children which though usually most marked in the skull occurred elsewhere. This hyperostosis was a somewhat localized form of osteitis deformans.

Mr. R. C. ELMSLIE remarked that Dr. Rolleston's case differed in several important points from the others, and corresponded more nearly with true puerperal osteomalacia. He recollected seeing two cases in the practice of other surgeons, of mollities ossium exactly imitating puerperal osteomalacia, occurring in girls, and starting at 9 or 10 years of age. One case he had under observation from time to time, and the condition was similar to that of the woman shown by Dr. Rolleston that evening, except that practically the whole stress of the disease fell on the spine, the pelvis, and the femora, and very little on the arms and distal parts of the extremities. In Dr. Rolleston's case the distal parts were also less affected. In the case of the boys shown the pelvis did not appear deformed, and neither case had a lateral curve. So there were the two classes, osteogenesis imperfecta, and mollities ossium in young girls; he did not know of mollities ossium of that type occurring in a young boy. One case of mollities ossium which he saw at the Orthopædic Hospital was interesting in that it started in a girl aged 10 or 12, and when he saw the patient she was aged 46, and she was walking. Her bones were undergoing spontaneous consolidation; the condition was being cured at the menopause. That seemed to him to correspond more closely with puerperal osteomalacia, and she was extraordinarily like Dr. Rolleston's patient. With regard to the boy shown, he thought he had still another condition, which Dr. Rolleston referred to as the disease described by Mr. Shattock under the name of "non-calcifying plastic osteitis"; and he seemed also to have the condition called "osteogenesis imperfecta." He had seen two cases of the former condition himself, and also the bones from a patient who suffered from it, which were shown there by Mr. Lawford Knaggs. In these cases there was the same enlargement of a particular locality of bone, following injury, and in each case there was loss of the true structure of the bone and its replacement by open cancellous tissue. In one case, under Mr. Robert Jones, a wedge was taken out of the tibia at the affected part, and he (Mr. Elmslie) found a chronic inflammatory process, in which there was replacement of much of the bone by fibrous tissue, but there were still left little spicules and lamellæ of bone which

[1] Pitts and Shattock, *Trans. Path. Soc. Lond.*, 1897, xlviii, p. 176.

were undergoing rapid absorption and showed large collections of osteoclasts. He thought the boy had that condition in his femora in addition to osteogenesis imperfecta, so resembling the child just shown. There was much literature on the subject of fibrous osteitis, starting with cases published by von Recklinghausen under the name of "osteitis deformans," but probably von Recklinghausen was imperfectly acquainted with Paget's description of the latter condition. He thought there had been cases of fibrous osteitis described in which there was a family incidence of the disease.

## Two Cases showing unusual Ulceration of the Skin.

By H. Batty Shaw, M.D.

(I) Icteric Ulcers of the Legs in Hepato-splenomegaly.

A. W., aged 28, has been icteric for twenty-three years. Urobilin is present in the urine, but no bile; the spleen especially and the liver are enlarged. He is liable to recurrent attacks of increased icterus, but of late years the attacks are less frequent. He has two ulcers, one on the outer malleolus of the right foot and one on the inner aspect of the left one; they began fifteen years ago. The ulcers heal when the patient rests in bed, but break down again on resuming ordinary life. The skin in the neighbourhood is discoloured reddish-purple. There is slight enlargement of the veins of the neighbourhood, but no varicosity.

[This case was shown before the Clinical Society in 1902; the icterus was in existence then.]

(II) Icteric Ulcers of the Legs in Pernicious Anæmia.

M. L., aged 42, has had abdominal pain and vomiting for the last two years; during the same period she has been noticed to be yellow. The catamenia had always been irregular, and amenorrhœa has existed for two years. Amongst the past illnesses there are measles and whooping-cough, "inflammation of the lungs" ten years ago, quinsy five years ago. At the ages of 12 and 22 she had attacks of abdominal pain and vomiting similar to the present attack. She is only fairly well nourished and is very weakly. There are systolic murmurs at the apex beat of the heart and at the pulmonary cartilage; the pulse (90 to 100) is regular but of low tension (90 mm.). There is much pyorrhœa

alveolaris and the gums occasionally bleed; the tongue, though pale, is otherwise normal. The liver reaches two fingers-breadths below the costal margin, the splenic area of dullness is increased, the right kidney can be felt. During her stay in hospital the temperature rose from normal to 101·8° F.: there was some constipation. The urine, examined seven times, always showed a faint cloud of albumin; it was pale and contained a slight excess of urobilin, no bile. The skin and conjunctivæ were lemon-tinted. The serum showed the presence of a slight amount of bile and of urobilin. Fundus oculi normal.

Blood examination: This was carried out on two occasions and each time showed marked anisocytosis, poikilocytosis and vacuolation of the red cells; megalocytes preponderated; no nucleated red cells were seen. Analysis: January 18, 1911—Total red cells, 935,000 per cubic millimetre; hæmoglobin, 30 per cent.; colour index, 1·45; total white cells, 3,850 per cubic millimetre; small lymphocytes, 56 per cent.; large lymphocytes, 25 per cent.; polymorphonuclear cells, 19 per cent. January 25, 1911—Total red cells, 1,225,000 per cubic millimetre; hæmoglobin, 30 per cent.; colour index, 1·10; total white cells, 6,500 per cubic millimetre; small lymphocytes, 19 per cent.; large lymphocytes, 18 per cent.; hyaline cells, 4 per cent.; polymorphonuclear cells, 58 per cent.; transitional cells, 1 per cent.

During the last four days in the hospital the patient became mentally disturbed, developing delusions and becoming maniacal. She was allowed to go home.

Icteric ulcers: These developments began simultaneously six years ago as "blisters containing blood" which broke and left small ulcers. These are present in the neighbourhood of each internal malleolus, and are irregular in shape and shallow; the surrounding skin is purplish-red and a little indurated. The ulcers do not cause pain, and appear to be independent of any varicosity of the crural veins, which are normal in size and appearance. There is no history of an injury which might have caused them to develop, and there is no specific history.

## DISCUSSION.

Dr. BATTY SHAW said that both his patients had failed him. One had become insane and the other had developed pneumonia. He was without any explanation of the development of the ulcers. In one case they healed by rest in bed and with antiseptic treatment. The only point in common to the two was that the urine contained an excess of urobilin. He did not think it

necessarily followed that the urobolin caused the ulcers, but possibly the bodies which were responsible for the excess in the urine had led to a weakening of the tissues, so that merely taking the upright posture led to the development of the ulcers. The ulceration was symmetrical in each case. The woman had the ulcers for six years; the man had had his for sixteen years, with jaundice off and on during the whole time.

Dr. F. PARKES WEBER said he took it that in Dr. Batty Shaw's first (male) case the icteric disease was what had been described as chronic acholuric jaundice with splenomegaly, or "hæmolytic icterus," occurring in families. Many such cases had now been published, and in the accounts scarcely any mention was made of the occurrence of chronic ulcers of the legs. There was very little in favour of any direct connexion between chronic jaundice and chronic indolent ulceration of the leg or ankle. One occasionally saw that kind of ulceration about the ankles of people with a weak circulation; it sometimes occurred in persons of a tuberculous tendency, suffering from chronic tuberculosis of the lungs or other parts of the body. He (Dr. Parkes Weber) did not believe there was any direct connexion between chronic acholuric ("hæmolytic") jaundice and ulcers of the legs, but in the family series described by Dr. G. Dorner and himself,[1] the eldest patient declared that his father, who was more or less jaundiced all his life, died at the age of 70 years as a result of ulceration of the leg.

## Syphilis, Chyliform Ascites, Dropsy and Albuminuria.

By H. BATTY SHAW, M.D.

W. T., AGED 28, carpenter, contracted syphilis eighteen months before admission to hospital, and was treated with pills containing mercury for over twelve months. Other than what appears to have been an attack of "peritonitis" three years ago (which was recovered from in fourteen days), there is no history of other antecedent illness. Two months ago his legs and abdomen began to swell; abdominal pains began, and the urine was much reduced in amount, was turbid, and was found to contain albumin; diarrhœa began at the same time and lasted three weeks. The abdominal pain was so severe as to prevent sleep. He was tapped by his local medical attendant, and on each occasion several pints of opalescent fluid were removed.

On admission to hospital he was found to have ascites, and dropsy

[1] F. Parkes Weber and G. Dorner, *Lancet*, 1910, i, pp. 227-232.

was present in the legs, sacrum, and lower back. This has persisted during his month's stay in the hospital. The temperature was over 99° F. for about fourteen days, and then became normal. The urine contained hyaline and granular casts; albumin was always present, varying from a total of 3 grm. to 32 grm. in the twenty-four hours (Esbach), the quantity of urine from 21 oz. to 100 oz. He was tapped on two occasions, and the ascitic fluid was opalescent each time, and found to contain no free fat. Wassermann's reaction in the blood was positive, and an atypical spirochæte was found in the urine; the ascitic fluid did not reveal the *Spirochæta pallida*, but gave a positive Wassermann's reaction. Half a gramme of salvarsan was injected subcutaneously on January 12, and on January 14 the blood gave a negative Wassermann's reaction. Neither the ascites and dropsy nor albuminuria appeared to be influenced favourably or unfavourably by the injection as the patient's condition on leaving the hospital was much the same as on admission.[1]

## DISCUSSION.

Dr. BATTY SHAW added that an interesting change had taken place since the patient's return home a week ago. When he left the hospital his ascites, dropsy, and albuminuria were still present, little, if at all, altered. Now, although the albuminuria persisted, the dropsy and ascites had entirely disappeared. Naturally, the question was whether these two phenomena had yielded to the effects of the salvarsan.

Mr. T. P. BEDDOES said the case was an extremely satisfactory one. There were alterations in the technique of giving salvarsan almost week by week. He did not regard the swelling at the site of inoculation as of very great importance. How far the improvement after leaving the hospital was due to the encysted salvarsan, and how far it was due to the previous inunction of mercury, was a matter of opinion. It would be interesting to know whether the case would progress towards improvement if treated with mercury, or whether it would now get better without treatment. Considering that there were those who thought about half the cases relapsed at a not remote period, and considering the readiness with which the liver yielded to mercury and iodides, either combined or alternating, he suggested that, as soon as convenient, the man might continue with mercury, and perhaps more vigorously.

[1] NOTE.—On the occasion of the present demonstration—i.e., one week after leaving the hospital—there is no trace of ascites, the liver edge can be felt below the right costal margin, and a fairly well marked cloud of albumin is found in the urine.

## Report on Tumour of the Upper Lip.[1]

By J. D. ROLLESTON, M.D., and N. S. MACNAUGHTAN, M.B.

THE tumour which was removed by Mr. P. L. Daniel, on January 25, 1911, was found to consist of a mass of solid convoluted cords imbedded in fatty and fibrous tissue, and to be attached by a pedicle to the right infra-orbital nerve, thus presenting macroscopically the appearance of a plexiform neuroma. The microscopical section, of which specimens were shown, confirmed this diagnosis. There was no evidence of hæm- or lymphangiectases, but some large vessels were seen in the section, and probably accounted for the bluish tinge of skin and growth of hair over the tumour. Dr. J. D. Rolleston said that it would perhaps be more accurate to use the term employed by Mr. S. G. Shattock of "plexiform fibroma of nerve" in preference to "plexiform neuroma," as it was generally agreed that there was no new formation of nerve-tissue. The somewhat similar case of macroglossia neuro-fibromatosa reported by Messrs. Abbott and Shattock[2] had suggested to him that the term macrocheilia or hemimacrocheilia neuro-fibromatosa would be a suitable description of the present case, it being understood that, contrary to what exists in ordinary macrocheilia, there was no lymphangiomatous condition present. Though the cervico-facial region was the commonest situation for plexiform neuromata, Dr. Rolleston had not been able to find any other instance in literature of the growth being confined to the lip.

[1] Shown at the last Meeting (*see* p. 72).
[2] *Trans. Path. Soc.*, 1903, liv, p. 231.

## Progressive Spinal Muscular Atrophy of Infants (Werdnig-Hoffmann).

By F. E. BATTEN, M.D.

M. W., GIRL, aged 1 year and 9 months; the second of two children, the mother and father being healthy. The first child, a boy, died at the age of 8 months, of broncho-pneumonia. He was said to have been "very loose" in the limbs from the time of birth. Patient was born at the seventh month, and was delicate for four months. She was said to kick about a good deal up to 6 months old, and appeared fat and healthy. When 6 months old she was vaccinated and cut her first tooth. She was said to be able to sit up at 7 months, but was not encouraged to do so. At 7 months she was able to talk a few words. Since she was 7 months old she has gradually got weaker and more helpless, and this weakness is said to have increased since October, 1910, and she cannot now lift the head off the pillow.

She was seen as an out-patient in June, 1910, by my colleague, Dr. Gordon Holmes. She was then unable to sit up, had weakness of the back; could make no attempt to stand. All the deep reflexes were absent. The mongoloid appearance of the child was noticed. She was placed on thyroid ½ gr. twice a day and improved, and is noted as "much improved" in October, 1910. The bowels had been constipated. She takes food well, and as she lies in bed appears quite healthy. The child is fairly nourished. She is happy and contented, says little words, and takes notice of all that goes on. She hears and sees well, and as far as is possible obeys commands. The palpebral fissure is small and oval, and this gives her the appearance described as "mongoloid," but there is no obliquity of the eyebrows outward, the skin is quite soft, the head of normal size, and the tongue smooth, so that there is nothing to suggest that the child is a mongolian idiot, though the term "mongoloid" is justified. The head measures 19½ in. in circumference. The incisors, canines, and first molar teeth are all present. The movements of the eyes, tongue, jaw, and lips are normal. The optic disks are normal. There is nothing wrong with the heart, lungs, or abdominal viscera. The chest is long and narrow, and on inspiration the intercostal spaces sink in, and it is clear that respiration is carried on by the diaphragm alone, which acts vigorously. The abdominal muscles are weak, but not completely paralyzed.

If the child is placed in a sitting position, the head falls forward, backward, or sideways, the neck muscles being powerless, the back becomes bent, and there is no power in the trunk muscles, either to flex or straighten the back. When placed flat on the bed, however, the spine is perfectly straight. The arms lie, as a rule, flexed at the side of the chest, the child can make little movements with the fingers, and can grasp objects feebly. She can just flex the elbow and pronate, but not supinate the hand. The forearms are more or less fixed in position of pronation. There is no power of movement in the shoulder muscles. The legs are almost powerless, there is practically no power of flexion of the hips or knees, but there is a little power in flexion and extension of the ankle and toes. The ham-strings are contracted so that the right leg cannot be fully extended. The limbs are thin, and the muscles are wasted, but this wasting is to a considerable extent covered up by the subcutaneous fat. The loss of tone in the muscles is very considerable, but the feet cannot be flexed over the shoulders, nor can the arms be crossed behind the child's back, positions which are possible when the hypotonia is marked in a child. Sensation to ordinary stimuli appears unimpaired all over the body. The knee-jerks, ankle-jerks, and all the deep reflexes are absent. The abdominal reflexes and plantar reflexes cannot be obtained. The sphincter ani is normal. The electric reaction shows complete loss of response to faradism in all the paralyzed muscles, but the muscles of the hand respond normally. The child bears a very strong current without evincing any signs of pain. In short, the child has an almost complete flaccid paralysis of all the muscles of the neck, trunk and limbs, the muscles of the face, eyes and diaphragm alone remaining normal.

## DISCUSSION.

Dr. BATTEN, in answer to the President, said that the patients usually died from broncho-pneumonia owing to the paralysis of the intercostals. The nucleus of the phrenic nerve was not affected and the diaphragm acted well, although the muscles in the neck and the sterno-mastoids were affected.

Dr. WILFRED HARRIS said those who listened to Dr. Batten's paper on the subject before the Neurological Section a short time ago would consider themselves fortunate in having had the opportunity of seeing the patient now shown. Dr. Batten had fully proved his case; it was not a case of amyotonia, as had been suggested by some. The disease was very rare; he had only seen one case before, and that was under the care of Dr. Beevor many years ago.

# Clinical Section.

March 10, 1911.

Sir A. PEARCE GOULD, K.C.V.O., President of the Section, in the Chair.

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## A Case of Tabes Dorsalis, with early Rectal Crises.

By JAMES COLLIER, M.D., and J. P. LOCKHART MUMMERY, F.R.C.S.

J. C., A CASE-MAKER, aged 44. No history of syphilis, congenital or acquired. An attack of gonorrhœa occurred ten years ago. For twenty years (since 24 years of age) he has suffered with attacks of rectal pain. For two years he has had deficient control over the sphincter ani. A few months ago he had occasional diplopia. The pupils are equal and react normally. The deep reflexes are normal. No lightning pains nor dysuria have occurred. There is well-marked loss of pain-sensibility over the radial aspects of the forearms. There is a very slight Romberg's sign in one leg. No other signs of tabes present. There is no rectal abnormality to account for the attacks of pain.

### DISCUSSION.

Dr. JAMES COLLIER said that when the case was sent up the description of the rectal symptoms made him think of rectal crises, but on examining the patient he found most of the characteristic symptoms of tabes were absent; there were no changes in the optic disks, the pupils were equal and normal, and the knee-jerks, whenever he attempted to elicit them, were present, though they were somewhat sluggish that evening. For the last two years there had been distinct incontinence of fæces and flatus, and during the last four months he had had many attacks of diplopia. There was also marked loss of pain-sensibility over the back of the thumb and the whole of the radial sides of both forearms, and across the chest, corresponding to the fourth or fifth cervical root segments. He tested the patient for ataxy, and he could only find he did not stand so well on the left leg as on the right. The man was now aged 44, and had had

the rectal pain ever since he was 24, or eighteen years before any other symptom supervened. There was no history of acquired or inherited syphilis. Wassermann's reaction had not yet been tried, nor had the cerebrospinal fluid been examined. The attacks of diplopia had lasted four months. From the point of view of the neurologist, he did not find rectal crises common as an early symptom of tabes; the crises were generally in advanced cases. This was the only case he had seen in which the rectal crises were the sole early symptom. Mr. Mummery saw these cases from another point of view, and he had observed a number in which the rectal symptoms were the first ones to appear.

Mr. LOCKHART MUMMERY said the cases of the kind he had seen had been those in which the patient complained of rectal crises, and on examination it was discovered that Argyll-Robertson pupils were present and knee-jerks absent. In the first case he saw, the patient complained of rectal crises, and on examination the knee-jerks were present but perhaps sluggish, and the reaction of pupils was sluggish. Subsequently he developed typical symptoms of tabes.

Mr. E. M. WOODMAN said he had a case of the kind—well-marked tabes with definite rectal crises. There was agonizing pain, and previously the patient had been treated by injections of morphia for it. He found soamin very efficacious in relieving the pain, giving 2 gr. twice a week by hypodermic injection. For the ensuing two months the patient had no further attack.

## Carcinoma of Thyroid, with Extensive Involvement of Lymphatic Glands; Operation three and half years ago; no Recurrence.

By WILFRED TROTTER, M.S.

PATIENT was admitted to University College Hospital in November, 1907. There was a hard globular mass, 2½ in. in diameter, in the right lobe of the thyroid body. The surface of the tumour was slightly nodular. There was no fixation to surrounding parts. Under the right sternomastoid a chain of enlarged glands could be felt extending from the clavicle to the level of the thyroid cartilage. Each gland was firm, smooth, freely movable, and about 1½ in. in diameter.

Operation: The enlarged glands were removed first. On section they proved to contain numerous small cavities lying in a firm, whitish substance. A microscopic section was therefore made at once, and showed a tissue largely consisting of imperfectly developed thyroid vesicles. The right half of the thyroid was then removed. During

the excision of the lymphatic glands there was very free oozing from the fatty tissue in which they were embedded. Primary union followed. The tumour was a solid, globular mass of firm, whitish texture, and had at its centre a small fibro-calcareous nodule. The tumour was enclosed by a thin layer of compressed thyroid tissue everywhere except posteriorly, where it had burst through the thyroid substance and capsule, projecting into the surrounding tissues in a polypoid mass ¾ in. long.

Microscopically the structure of the tumour shows considerable variation. In parts it is that of a carcinoma, in parts it shows many fairly normal thyroid vesicles. The enlarged glands have a corresponding structure. The tumour is a characteristic specimen of the adenocarcinoma of Langhans, but differs strikingly from the cases of this type described by him and by Kocher in the extensive involvement of the lymphatic glands.

Some two months after the operation it was thought that some further enlargement of the glands on the right side of the neck could be detected. In view of the fact that at the first operation those glands only which were obviously enlarged had been removed, a complete dissection of the anterior and posterior triangles of the right side was done. All the fat, fascia and glands from the base of the jaw to the clavicle were removed in one mass. The specimen, however, showed no obvious recurrence. The wound healed by first intention. No further evidence of the disease has appeared.

(Microscopic section of lymphatic glands shown.)

## Two Unusual Cases of Thyroid Tumour.

By Rickman J. Godlee, M.S.

### Case I.—Very Chronic Soft Recurrent Growth.

J. R., a married woman, aged 54, was admitted to University College Hospital in October, 1905. Four years before a small lump the size of a nut had been noticed in the left lobe of the thyroid. On admission there was a mass 4 in. by 3 in. reaching down to the sternum and pushing the trachea over to the left. It was soft and elastic and constricted in the middle by a transverse furrow. It was taken for an ordinary adenoma. It was removed through an S-shaped incision. On dividing the thin capsule very free bleeding occurred, so its outer border was quickly exposed and some large vessels were secured. The tumour

was then without delay turned inwards and shelled out without difficulty and cleanly from the gland on the inner side; but the patient lost a good deal of blood and was much collapsed. She, however, recovered uneventfully. Microscopically the structure of the tumour was said to be much the same as that of normal thyroid tissue, but rather more cellular.

She returned in January, 1907. In the isthmus there was a hard lump rather larger than a Barcelona nut attached to the trachea, and several soft swellings occupied the right side of the neck, apparently glands, which had been first noticed in December, 1906. The glands were removed without difficulty and were found to be full of a soft growth. The apparently hard tumour in the isthmus was also really soft and broke on attempting to remove it, so the remainder was scraped away with a sharp spoon. The wound healed rapidly. The growth consisted of closely packed spheroidal cells with fine intercellular stroma, which in most places was occupied by capillaries and small blood-vessels. Scattered through the section were seen round or oval spaces lined by a single layer of cuboidal cells resembling those of thyroid tissue, most of them empty, but a very few containing colloid material. Some parts of the section showed tissue like that of lymphatic gland.

Recurrence has gradually occurred in the glands on both sides of the neck, which is now occupied by large, rounded soft masses, which are movable, but which, except from their size, cause the patient no inconvenience. A free administration of thyroid extract has not appeared to influence their growth, which is very slow. Notwithstanding the extreme chronicity of the case, it seems doubtful if any further operation is justifiable.

### Case II.—Extensive Thyroid Tumours cured by Partial Removal and Administration of Thyroid Extract.

P. M., aged 29, was admitted in June, 1908, with an extensive swelling of apparently soft glands on the right side of the neck; one larger than a large walnut was situated behind the jaw, and there was a similar lump beneath and behind the sternomastoid, reaching down to the clavicle. The thyroid appeared to be normal. It had been coming for two or three years, and had occasionally caused slight pain. He had never had such swellings before. It was supposed that they were tuberculous glands, but they had more the appearance of lymphadenoma.

On exposure on June 6 the bluish surface of the veins on the surface at once suggested thyroid tumours. They were all easily cleared on the outer aspect, but all were adherent on the under surface to the deep vessels by dense fibrous adhesions, which it was necessary to cut through, unless the carotid arteries, the jugular vein and the accompanying nerves had also been removed, which was of course out of the question. Accordingly when the operation was completed a hard mass as thick as the thumb was left, extending from the mastoid process to the clavicle, and no hope was entertained that further development would not occur. There was apparently no attachment to the thyroid gland, which appeared to be normal. The mass on section looked like rather brown thyroid tissue, but in the deeper parts were some masses of yellowish-white material, tougher in consistence than the rest. A microscopical section showed that the greater part consisted of tissue resembling that of the thyroid, but there were in some parts masses of small round cells.

The patient was at once put on thyroid extract, which he continued to take for some time, and this was followed by a complete disappearance of the hard mass, and there has been no recurrence up to the present time, that is, two and three-quarter years since the operation.

I show these cases together, not because they are similar, but because they are both thyroid tumours and both peculiar. The first is exceptional because it is evidently a malignant growth, but the malignancy is of a very mild type. There is none of the rapid adhesion to surrounding parts, and even now, after ten years, there is very little interference with the patient's comfort or with her general health. The second is still more remarkable, because it can hardly be looked upon as a case of aberrant thyroids. The mass clinically had all the appearance of a malignant tumour. But a very incomplete removal, accompanied by the exhibition of thyroid extract, has apparently been followed by a complete cure.

Mr. GODLEE added that it had been suggested to him that the second case might be one of aberrant thyroids. But he did not think that was so, partly because the structure of the tumour under the microscope did not fit in with that, and also because they contained some lymphatic gland tissue. Moreover, he did not think such thyroids were adherent to the deep structures. There could be little doubt that it was a growth in the lymphatic glands, and it was remarkable on account of the complete disappearance of the hard mass. No connexion could be found, at the operation, with the thyroid gland, though this was in his mind at the time.

# A Case of Graves's Disease: its Treatment, first by Medical Methods, and later by Excision of one of the Lobes and the Isthmus of the Thyroid Gland.

By C. H. Pring and Arthur Evans, M.S.

## Notes of the Initial Treatment (Mr. C. H. Pring).

Mrs. D., aged 43, first sought advice in April, 1908, on account of various nervous symptoms—headache, tremblings and excitability, with flushings. These were attributed to the menopause, and treated accordingly. Improvement resulted. The patient's weight was then 8 st. 12¾ lb. In May and June, 1909, she was again suffering from vasomotor disturbances, profuse sweatings, tremor, and rapid cardiac action, but no complaint of the thyroid gland was made, and no alteration in it noticed. Belladonna and potassium bromide were given, and opium later to control diarrhœa which commenced about this time; neither of these drugs was of much use. Phosphate of soda was given without any good effect. Patient's weight was now 8 st. 6 lb.

In February, 1910, the thyroid body was first noticed to be enlarged. Thyroid extract was given, and apparently did more harm than good. Rest in bed was ordered; arsenic and ergot tried internally, with local applications of iodine in various forms. The swelling subsided for a few weeks but then reappeared, and suffered no further diminution in size. There was no exophthalmos, but the rapid cardiac action, trembling, sweating, and diarrhœa were increased, and gave rise to considerable anxiety. Loss of weight continued (7 st. 0½ lb. in July, 1910). Suprarenal extract was given, and the changes rung on all the drugs recommended, but in no single instance was any good effect seen.

In August, 1910, the patient was very ill, and went to Broadstairs for a month. I saw her soon after her return and was much shocked at her appearance. She was exceedingly emaciated, the pulse was very rapid and irregular, there was commencing exophthalmos, the diarrhœa was persistent, and her condition altogether caused the gravest fears. Her weight had fallen to *6 st. 7 lb.*

It was obvious that unless some radical change could be made in her condition the patient would not live many weeks, and although the gland was by no means large the question of operation arose. Mr. Evans saw the patient and advised partial excision of the thyroid gland.

SUPPLEMENTARY NOTES (MR. ARTHUR EVANS).

I saw the patient on October 7, 1910. The pulse was then 130 and irregular; the heart's impulse was "bounding"—there was no cardiac murmur; she had marked tremors; her weight, which originally was 9 st. 2 lb., when taken two weeks ago was 6 st. 7 lb.; there was no obvious exophthalmos, but slightly marked von Graefe's sign. She felt as if she "could not get her breath," and if she happened to be in a hot room she had to "come out, gasping." The vocal cords moved freely, and the trachea showed no indentation.

I saw her again on October 13, when there was marked augmentation of the symptoms. She had obviously wasted, and I should think she now weighed not more than 6 st.; the right lobe of the thyroid had increased in size, and the left was beginning to enlarge; the pulse was very irregular and uncountable at the wrist, but listening over the heart it was reckoned at 148 and 152 per minute; there was marked pulsation in the neck.

The following day, assisted by Dr. Pring, I excised the right lobe and isthmus of the thyroid. The anæsthetic was given by Dr. Cecil Hughes, and the patient occasioned him no anxiety. There was nothing worthy of note as regards the operation save that there was a good deal of trouble in "shelling out" the thyroid; I mean by this that the loose (veal-like) connective tissue, out of which one usually shoots the thyroid with a sweep of the finger, was more fibrous and more firmly adherent to the surface of the gland, so that some vessels were torn in the separation. The gland was so adherent to the upper rings of the trachea that I tore through the gland in that situation, leaving a thin layer of the thyroid adherent to the trachea. Into the lowest part of the wound I inserted a gauze drain, and also a rubber drainage tube, the lower end of which was brought out through a small opening above the sternal notch. Two hours afterwards the pulse was 120 and regular.

Next day the dressings were changed, and were soaked with secretion from the torn surfaces of the thyroid. On the second day after the operation the pulse-rate was 120 and 104; on the third day 98 and 106; on the fourth 100 and 88, and from that day onwards it was about 88.

On November 3, when the patient left the nursing home, the weight was 7 st. She wrote to me on December 9, saying, "I am now 8 st.; I have a very good appetite without the aid of medicine; I feel quite a different being, and life is now worth living." On January 8: "I am now 8 st. 8 lb., I hope you did not expect me to be more than that; I think I am quite fat enough."

## DISCUSSION.

Dr. LEONARD WILLIAMS, referring to the paragraph stating that the symptoms were attributed to the menopause, asked what the treatment referred to was. In regard to thyroid extract being given for the enlarged thyroid, he asked what doses were given.

Mr. PRING replied that the treatment of the early symptoms consisted of general tonics, including iron, and rest. The thyroid extract was given later in doses of 5 gr.[1] once a day at first, then twice, and then three times. It did more harm than good. It was given because it was mentioned as a remedy in Clifford Allbutt's "System of Medicine."

Dr. LEONARD WILLIAMS begged leave to doubt whether it was in reality a case of Graves's disease, though he thought the symptoms were rightly attributed to the menopause. If they were, then he thought the dose of thyroid extract (5 gr. three times daily) which had been given was at least ten times too large, and he was not surprised to hear that the drug had seemed to do more harm than good. On the question as to whether or not the case was properly labelled Graves's disease, he admitted that it was difficult to be sure whether that disease was due to a mere hyperactivity of the thyroid gland or whether, in addition, the secretion was perverted. There could be no doubt that in this case the gland was too active, but at the menopause it was common to find a disharmony between the internal secretory glands, and although, as a rule, the thyroid secretion became unduly diminished at the climacteric, it did occasionally show signs of over-activity. He thought that if medication by some of the other internal secretory glandular substances had been tried, this patient might have been saved the operation. Biliary salts were very useful in such conditions. They were originally tried because the pulse in jaundice being slow, their presence in the blood might counteract the tachycardia. This result certainly followed, and many of the other symptoms, even the diarrhœa and tremors, were also ameliorated. Glyco-cholate of soda, by the mouth, occasionally succeeded, but the subcutaneous route was preferable. Another drug which did good in hyperthyroidism as well as in Graves's disease was thyroidectine. Ovarian extract often did good, and, more often still, pituitary extract. As bearing on the question of a normal versus a perverted secretion in exophthalmic goitre, two facts were of interest. One was that although one case had been recorded in which hypermedication with thyroid extract had produced exophthalmos, the case was unique, and no one had succeeded in

[1] NOTE.—Mr. Pring writes to say that on referring to his notes he finds that 2½ gr. of thyroid extract were given, not 5 gr. as stated. He desires to point out that although the writers of the article on Graves's disease in Clifford Allbutt's "System of Medicine" (1897, iv, p. 507) state that "usually we have found the patient's symptoms distinctly aggravated even by small doses," they add, "we have given large doses without affecting the patient in any way." As a matter of fact, for over twelve months almost every drug mentioned by recent writers on this disease was tried without any apparent benefit.

provoking this symptom experimentally, though many had tried. The other was that the administration of small doses of thyroid extract was often, very often, strikingly beneficial in true Graves's disease.

Dr. ROBERT HUTCHISON, discussing the question whether the secretion in exophthalmic goitre was perverted or simply excessive, said he remembered some years ago administering to normal individuals thyroid substance which was taken from large goitres removed from patients who had exophthalmic goitre. The powder produced no symptoms other than one would have seen from ordinary thyroid tissue.

Mr. C. GORDON WATSON remarked that one point of interest not already mentioned was the difference between the naked-eye appearance of a section of the thyroid gland in a case of exophthalmic goitre as opposed to a case of parenchymatous goitre. Specimens which he had examined in museums, and some which he had seen operated on, were quite characteristic to the naked eye. A section of the thyroid in exophthalmic goitre was more like the parotid or pancreas: the substance was compact, and did not contain cysts. Microscopically, a distinction could easily be made, so that the diagnosis ought to be certain after operation, even if uncertain before. He would like to mention one case, and would be glad to know if other Fellows of the Society had observed the same condition—namely, the disappearance of the exophthalmos on one side only after removal of the corresponding lobe. This he had seen happen in a case operated on by a colleague at St. Bartholomew's Hospital.

Mr. SAMPSON HANDLEY wished to know whether Mr. Godlee considered that his second case was one of carcinoma, and what he thought of its histological characters.

Mr. GODLEE, answering Mr. Handley, said he had examined the section of the second case many times, and had that evening conversed with Mr. Trotter about it, and that he had pointed out that in many places there was apparently a tendency to the formation of intracystic growths, although to the naked eye the mass was solid. It might therefore possibly be called an adenocarcinoma, but it was difficult to distinguish between this and adenoma. One of the first cases of dissemination of an unobserved thyroid tumour ever described was reported by Sir Henry Morris to the Pathological Society many years ago; in this there was a pulsating tumour in the skull.[1] The structure of the growth was almost exactly like that of normal thyroid tissue. There were no intracystic growths. The large thyroid had not attracted attention during life, and was only discovered by means of a photograph taken some time before death.

Mr. SAMPSON HANDLEY, in further comment, said he thought the case was one of carcinoma. Mr. Trotter's case seemed to be, prima facie, an instance of a natural cure of a carcinoma of the thyroid gland. Both the operators practically stated that the removal was imperfect. The cases might therefore be regarded as prima facie instances of natural cure of cancer assisted

[1] *Trans. Path. Soc. Lond.*, 1880, xxxi, p. 259.

by very skilled surgery. He thought it was very important to recognize in the surgery of carcinoma, that even when it seemed hopeless to secure complete removal, the surgeon might still feel that, in a percentage of cases, Nature would help him, if the amount of malignant tissue in the body was reduced below a certain level. If natural cure occurred at all, one might expect it in the thyroid, in view of the great tendency to mucoid degeneration in the thyroid cells.

Mr. EVANS, in reply, said he showed the specimen of the thyroid, as it threw light on one or two points. He was surprised to hear that Mr. Trotter thought the isthmus was growing again, because he (Mr. Evans) knew he had removed the isthmus, and an examination of the specimen would show that it consisted of the right lobe and the whole of the isthmus. With regard to the remark of Dr. Leonard Williams that the case was not one of Graves's disease, but one in which the symptoms should all be considered as being associated with the menopause, he must totally disagree. When he (Mr. Evans) sent in the notes of the case to the Secretary it was headed "A case of tachycardia, tremors, enlargement of the thyroid, and marked emaciation," and he was not surprised to find that the one who read the notes had summarized it as a case of "Graves's disease"; he felt sure that that was the opinion of most of those present who had read the report—it certainly would have been, had they seen the case before the operation; moreover, the microscopic features of the tumour were such as one would expect to find in a case of Graves's disease, and the immediate improvement caused by the operation left no doubt as to the nature of the malady.

## Two Cases of Muscular Atrophy of the Peroneal Type (Charcot, Marie, Tooth) in Father and Son.

By LEONARD GUTHRIE, M.D.

### CASE I.

C. B., AGED 69, was a blacksmith (is father of second patient). Complains of general weakness and "shakiness," and of wasting, deformity, and weakness of both hands and feet.

History: Has always been inclined to shake and tremble. He gave up work sixteen years ago on account of wasting, weakness, and deformity of his hands. He states that his feet have only become deformed during the past twelve years, but his wife and son both maintain that his feet have always been as they are now, but for reasons of his own he will not admit it.

Family history: A brother (now dead) had deformed feet; a son (Case II) and a daughter have also feet like their father's.

Present condition: Fairly robust. There is slight weakness of the lower half of the right face. (He is said to have had two strokes of paralysis some years ago.) Upper extremities: Both hands, especially the left, are in a condition of *main en griffe*, with wasting of thenar and hypothenar eminences and of the interossei. The muscles of the forearms are wasted, but those of the arm and shoulder are normal. Tendon reflexes: The supinator- and triceps-jerks are absent on both sides. Lower extremities: There is marked "pes cavus" and "claw foot" on both sides, with prominence of instep, hollow sole, hyper-extension of proximal toe-joints, and wasting of interossei. Movements of the feet at the ankles are very restricted. The muscles of the legs are wasted, especially in the peroneal region; the gastrocnemii are less affected. Tendon-jerks: knee-jerks are quite absent; ankle-clonus and plantar response cannot be elicited. Sensation: Sensation to touch and pain seem normal on examination, but his son says that he does not seem to feel when he cuts his fingers, and drops things from his hands without knowing it. Trophic changes: Hands and feet are cyanotic, and the finger-nails on the right hand are brittle and cracked transversely.

CASE II.

H. B., aged 29 (son of first patient), brass finisher. Complains of "nervousness and shaking," which have increased recently, and of difficulty in walking owing to deformity of feet.

Present condition: Slightly built, but fairly well nourished man. Eyes rather prominent; pupils, optic disks, and ocular movements normal. No nystagmus. He shows slight and very variable tremors of the head and whole body; the hands are tremulous when extended in front of him. Fibrillary twitchings are present in the masseters and other muscles, and subsultus tendinum in flexors of the forearms. There is no definite ataxy, but he is clumsy in picking up small objects, and complains of "cramps" in his hands on starting work, so that he cannot easily let go of objects grasped (myotonia?). There is no wasting of the hands or upper extremities, nor loss of muscular power. Tendon-jerks: The triceps- and supinator-jerks are absent on both sides. Trunk: There is no scoliosis, but the chest is unsymmetrical, the left front bulging more than the right. Lower extremities: the feet are exactly like his father's, and were noticed to be so in very early life. They show

marked "pes cavus," the instep is "humped," the soles hollow, all the toes are hyper-extended at the proximal joints, and the interossei are atrophied. He has slight power of dorsiflexion, but very little lateral movement of the feet at the ankles. The leg muscles are all small, especially the peronei. The thigh muscles are fairly well developed. Tendon-jerks: The knee-jerks are absent; ankle-clonus, absent; the plantar response is negative or feebly extensor, probably owing to paralysis of the interossei. Electrical reactions: The thigh muscles react to strong F. and G. currents; A. C. C. = K. C. C. No reaction to F. and G. in the peronei, but slight response to both currents in the ext. longus digitorum, and ext. hallucis and fl. brevis minimi digiti. Sensation: There is slight patchy and ill-defined diminution of sensibility to tactile and painful stimuli over the fronts and outer sides of the legs. He is extremely tolerant of powerful electrical currents applied to all parts of the lower extremities. Sense of position is slightly impaired; he does not know when his great toes are flexed passively if his eyes are closed. Slight Rombergism is present.

### Addendum.—Case III.

F., aged 28, married, daughter of first and sister of second patient (not shown at meeting). Has two boys; the elder, aged 3½ years, is said to have "broad feet," but no other deformity; the younger, aged 1 year, has the second and third toes on the left foot slightly webbed, but the feet are otherwise normal. Patient is a healthy-looking but rather sparely built woman. Both hands are "clawed," like her father's, especially the right; the intrinsic muscles of the hands and muscles of the forearms are much wasted. Fibrillary tremors and subsultus tendinum are noticeable, as in her brother (Case II). The supinator-, triceps- and biceps-jerks are absent. Both feet show marked "pes cavus," exactly like the father's and brother's. The muscles of the legs are atrophied, especially the peroneal groups, and there is very little power of movement of the feet at the ankles. The knee-jerks are absent, the plantar response is extensor, probably owing to weakness of the small flexors.

She says that her mother did not notice deformity of the feet in herself and brother until they were old enough to wear boots and she found that she could not buy any to fit them. The hands became wasted and deformed at about the same time as the feet.

## Case of Splenomegaly (? Congenital Family Cholæmia).

By Robert Hutchison, M.D.

E. P., aged 15. Patient is the third of a family of fourteen, two of which were stillborn. No miscarriages. Four of the family are dead; one, died in infancy, and was always very sallow; one, of convulsions at the age of 3 months; one (a boy), when about a year old, of anæmia and a very large spleen (attended the Evelina Hospital); and one (a boy), in the London Hospital at the age of 15 months of splenic anæmia of infancy. A maternal aunt died in the London Hospital twelve years ago of leukæmia. The notes of her case are not very full; the white cells are stated to have numbered 700,000 per cubic millimetre; and the spleen was much enlarged.

Of the surviving members of the family, six (three boys and three girls) are healthy. One sister (aged 7) has had a large spleen since she was six months old, and exhibits the same blood changes as the present patient (*see* below), but the serum does not give the bile pigment reaction. The parents are both healthy.

Condition of patient: Anæmic, but not icteric. Spleen reaches to umbilicus. No enlargement of liver or glands. Blood: Red cells, 3,700,000; hæmoglobin, 65 per cent.; white cells, 4,000; polynuclears, 68 per cent.; eosinophiles, 1 per cent.; small lymphocytes, 5 per cent.; large lymphocytes, 22 per cent.; large hyalines, 4 per cent. One normoblast to 200 white cells. The serum contains a definite trace of bile pigment. Wassermann reaction negative. The blood shows complete hæmolysis in the presence of 0·4 per cent. salt solution; a normal control showing a slight tinge only.

The sister of this patient (aged 6), when examined in November, 1910, exhibited definite anæmia, with a spleen reaching half-way to the umbilicus, but no enlargement of the liver or glands. The blood showed: Red cells, 3,150,000; hæmoglobin, 55 per cent.; whites, 4,000; polynuclears, 21 per cent.; eosinophiles, 0·2 per cent.; small lymphocytes, 27·8 per cent.; large lymphocytes, 48·0 per cent.; large hyalines, 2·6 per cent.; basophiles, 0·2 per cent.; neutrophile myelocytes, 0·2 per cent. There were thirty normoblasts to 500 whites. Serum did not exhibit bile reaction. The blood showed hæmolysis in the presence of 0·5 per cent. salt solution.

## DISCUSSION.

Dr. F. PARKES WEBER said that the case shown by Dr. Hutchison was an example of a condition which might be termed "splenomegalic anæmia" to distinguish it from conditions usually classed as "splenic anæmia." Possibly the term "splenomegalic hæmolytic anæmia" might be preferred by some. In a paper with Dr. Dorner on "Four Cases of Congenital Acholuric, so-called Hæmolytic, Jaundice in One Family,"[1] he had written: "It is highly probable that in some cases of the disease (congenital acholuric jaundice), the jaundice (at all events, obvious jaundice) may be intermittent instead of remittent—i.e., that (for a time at least) jaundice may be apparently absent, though the splenomegaly and characteristic blood features of the disease are present. Such cases might be clinically termed cases of splenomegalic anæmia. . . . In other words, it appears almost certain that a form of splenomegalic anæmia without jaundice may occur (though perhaps only temporarily) as an *incomplete* form of the chronic splenomegalic acholuric jaundice of which the family in question affords *complete* examples." A few cases of splenomegalic hæmolytic anæmia had been described on the Continent by Armand-Delille and others. The operation of splenectomy could hardly be advised in Dr. Hutchison's case. If patients with congenital acholuric jaundice survived childhood, they had a fair chance of attaining a good age. In the family to which he (Dr. Weber) had referred one jaundiced member attained the age of 70, and the eldest living affected member of the family, aged about 54, did not appear to be much troubled by his splenomegaly and jaundice.

Dr. JAMES GALLOWAY said that Dr. Hutchison's demonstration gave him the opportunity of reporting a group of cases occurring in the same family of jaundice with splenomegaly. He had hoped to bring these patients before the Section at one of the earlier meetings this session, but as they lived some distance in the country he had been unable to do so. The father, a man aged 38, came under observation in September last on account of a severe attack of pneumonia affecting the right lung. The induration of the lung had not completely disappeared when he was examined by Dr. Galloway. The patient, naturally dark brown in complexion, had an unnatural yellowish-brown tint, affecting the skin and conjunctiva. He stated that he had been liable to what he called "bilious attacks" from infancy, and that any slight illness caused him to become yellowish and to appear jaundiced. The spleen was much enlarged, extending 3½ in. from the costal margin—the anterior edge could be felt 1½ in. from the umbilicus. The urine contained no albumin, did not reduce Fehling's solution, and did not appear to be tinted with bile. The examination of the blood gave the following results (November 7, 1910):—

[1] *Lancet*, 1910, i, pp. 227-232.

| | |
|---|---|
| Hæmoglobin ... | 70 per cent. |
| Colour index ... | 0·85 |
| Red blood cells | 4,140,000 per cubic millimetre. |
| Leucocytes ... | 13,000 ,, ,, |

| | |
|---|---|
| Polymorphonuclears | 74·2 per cent. |
| Lymphocytes | 12·8 ,, |
| Large mononuclears | 8·4 ,, |
| Transitionals | 2·0 ,, |
| Eosinophiles | 1·4 ,, |
| Basophiles | 1·2 ,, |
| | 100·0 |

Moderate poikilocytosis; many megalocytes and microcytes.

This patient, on his return to the country, had a recurrence of febrile symptoms and was unable to return to London for a more complete investigation. The patient is married; his wife seems to be in good health; she is much fairer in complexion than her husband. There have been three children. The eldest, aged 8, is of a swarthy complexion like his father, of the same yellowish-brown tint, though not so deeply tinted as his father at the present time. He is small for his years. He had an attack of pneumonia at the age of 4, and what is stated to have been rheumatic fever on two occasions. The spleen is much enlarged, relatively larger than in the case of his father; its anterior edge can be felt 3 in. from the costal margin. The blood examination (November 7, 1910), was as follows:—

| | |
|---|---|
| Hæmoglobin ... | 70 per cent. |
| Colour index ... | 0·97 |
| Red blood cells | 3,620,000 per cubic millimetre. |
| Leucocytes ... | 13,800 ,, ,, |

| | |
|---|---|
| Polymorphonuclears | 69·6 per cent. |
| Lymphocytes | 22·6 ,, |
| Large mononuclears | 7·8 ,, |
| Transitionals | 0·0 ,, |
| Eosinophiles | 0·0 ,, |
| Basophiles | 0·0 ,, |
| | 100·0 |

Slight poikilocytosis; a few megalocytes and microcytes.

These parents have had two other children; one of them, a boy, died at the age of 15 months, it is stated, of pneumonia. He was swarthy of complexion, like his father. The second surviving boy is fair in complexion, not like his father in appearance, and appears to be in good health. He has also had pneumonia. It is stated that preceding and collateral members of the father's family have resembled him in appearance. Cases such as the patient brought by Dr. Hutchison were so unusual that Dr. Galloway ventured to report these facts, although the investigation was by no means complete. He thought there could be little doubt—and it was a point of importance in Dr. Hutchison's case—that the degree of pigmentation of the skin varied greatly from time to time. There seemed to occur febrile attacks during which the icteric tint was much increased. It was probable that many of the so-called "bilious," and

possibly some of the other febrile attacks, might be really due to exacerbation of the disease from which these patients suffered. Dr. Galloway also remarked that a good many cases had now been reported in adults of splenomegaly with, or without, evidence of liver disease in whom much pigmentation of the skin occurred. He showed a drawing of a patient who had long suffered from enlargement of the spleen with possible cirrhosis of the liver, whose principal symptom was the occurrence of hæmorrhages. She finally succumbed to a severe hæmorrhage from the bowel. For many years she had shown this peculiar dark-brown pigmentation, which was described as "hæmochromatosis." In such cases the diagnosis would have to be carefully made between this type of family jaundice and those cases of splenomegaly with cirrhosis of the liver sometimes known as "Banti's disease."

Dr. SUTHERLAND discussed the case from the point of view of performing splenectomy. For years physicians had been interested in splenic diseases, and had studied them carefully, but had not made many advances in regard to the therapeutics of these diseases. Dr. Hutchison's patient had a very bad family history as regards splenic trouble, and many deaths had ensued directly from this condition in her family. It was true the girl seemed fairly well just then, but such cases tended to get progressively worse, although many of them were very chronic, the result being usually fatal. Most of the cases of primary splenomegaly had blood changes like the present patient, and there was no evidence in the clinical report of the presence of other disease. It was well worth while to consider splenectomy in this case, as, so far, the patient had had no hæmorrhages.

Dr. HUTCHISON replied that he had carefully considered the question of splenectomy, but he thought Dr. Sutherland was mixing up two different conditions. Dr. Hunter and he were thinking of splenic anæmia, so-called, which tended to end in cirrhosis of the liver, with hæmorrhages. In that condition, he believed excision of the spleen was the right thing to do, if cases were seen early enough. But if the bone-marrow was so made that it turned out red cells, which were unusually friable, as was probably the case in splenomegaly with acholuric jaundice, and if the spleen was merely enlarged secondarily, because it must do extra duty as a filter, he did not think splenectomy was rational.

## Benign Cyst of the Tibia.

By H. A. LEDIARD, F.R.C.S.

ON August 14, 1910, a girl, aged 14, was brought to the Cumberland Infirmary on account of a large swelling in the lower third of the left leg, which had been growing for nine months, so far as it had been observed. At first there was no pain, but more recently, when weight

was put on the leg, as in walking, pain was felt. During the three months prior to admission the swelling in the leg had increased considerably.

On the left leg a well-marked swelling of the tibia was seen, which involved the lower third of the bone, reaching almost to the ankle-joint. The swelling was uniform in outline and pear-shaped, the widest part being above the ankle and the apex tapered off into the normal bone above. The swelling was firm to the touch and the skin over it was tightly stretched, but not adherent. No egg-shell crackling was obtained. There was no alteration in the colour of the skin over the swelling, nor were any vessels visible. No tenderness was present except on firm pressure. There was no rise of temperature locally nor generally, and the general condition of the girl called for no comment.

In order to discover the nature of the swelling a trephine was used over the inner aspect of the swelling. The bit of bone removed was exceedingly thin and presented no obstacle to the saw. The finger discovered a large cavity in the bone, which contained a clear watery fluid, slightly tinged with blood. No spicules of bone were detected, but a smooth thin membrane lined the cavity. The bone appeared to be very thin and expanded uniformly all round. The fluid from the cyst was not saved for examination. A few days later the limb was amputated at the knee-joint. The girl recovered and left the hospital on October 1.

There are a few points which call for remark: The swelling of the bone was consistent with a sarcoma, with tuberculous disease of the medulla, or, as matters turned out, with a cyst of the bone. The absence of constitutional disturbance gave no indication in any special direction. There was no egg-shell crackling. The age of the girl favoured the presence of sarcoma, but the surface of the swelling was even all over and shaded off above into the normal bone at the junction of the middle and lower thirds of the limb. When the trephine was used, it was seen that an expansion of the bone into a thin shell was the condition to be dealt with.

### Radiography.

Prior to any interference a radiograph was taken, and it shows a uniform smooth-surfaced swelling of the tibia, and a light shadow in contrast with the dark one of the healthy bone of the shaft above the cyst (fig. 1). At the lower part the swelling ends abruptly at the level of the epiphysis.

To those experienced in the radiography of bone cysts, the radiograph of this case may be conclusive. Beck was the first to allude to the diagnostic differentiation of bone cysts by radiography. He said, "the radiograph yields a clearly bounded line of cortex of the thickness of letter paper, forming a frame for a quite transparent oval surface of spindle form. The cohesion of the outer rind is nowhere broken. The epiphyses are normal."[1] Lexer has attributed a high value to the radiography of bone cysts, but other observers have not been so impressed. Rumpel has concluded that cysts of bone can be distinguished from sarcomata by radiography. In 1907 Jones and Morgan wrote on "Benign Cysts of the Long Bones,"[2] and stress was laid by them on the value of radiography in the diagnosis. Since then Mr. Hugh Lett has published a radiograph of a cyst of the humerus, upon which he operated with success.[3] There can be no doubt that radiography is of great value in aiding the diagnosis of these cases, even if it cannot be said to give a conclusive verdict when it is brought into use in bone cysts.

In my case the radiograph shows no thin dark line bounding the cyst suggestive of the thin shell of bone which was found and can be seen in the specimen or photograph.

## Treatment of the Case.

Owing to some extent to the length of time which it was proposed to take for the examination of the bone removed by the trephine and the bit of lining membrane of the cyst—viz., ten days—it was decided to deal with the case as one of probable sarcoma, and an amputation through the knee-joint was done. Seeing how large the cyst really is, and how thin a shell of encasing bone is shown, I question whether any conservative method of treatment would have afforded the girl a useful and reliable support for the weight of the body—e.g., by such a method of treatment as has been adopted in a case of cyst of the humerus by Mr. Hugh Lett.

In the present case amputation was resorted to because the diagnosis leaned to a malignant growth, and not because the limb might have been unserviceable if less drastic means had been adopted.

[1] *Archiv f. Klin. Chir.*, Berl., 1903, lxx, p. 1099.
[2] *Arch. Roentg. Ray*, 1906-7. xi, 316, 342.
[3] *Lancet*, October, 1910, ii, p. 1202.

THE CYST.

The cyst measures 3¼ in. in length and 2¼ in. in breadth. The shell of the bone is very thin, and before long egg-shell crackling would have been present, and a great liability to fracture. The interior of the cyst is not quite as even as the external subcutaneous surface felt, for the inner wall shows numerous small septa of bone, forming parts of smaller

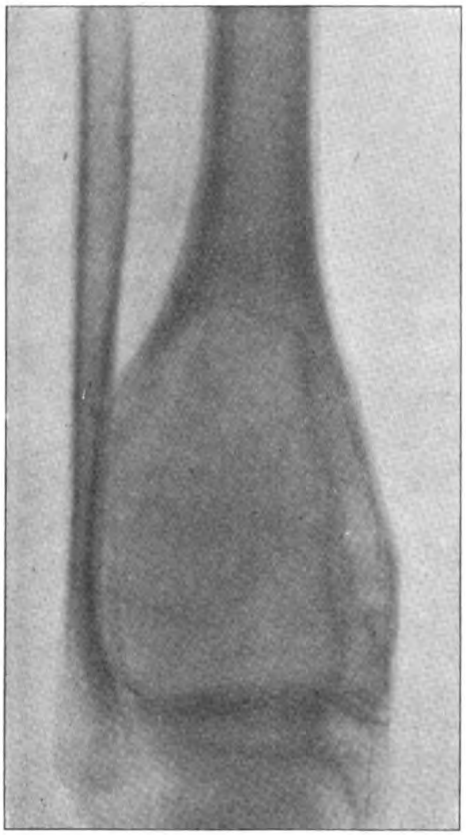

FIG. 1.
Skiagram of cyst of tibia.

cysts, lying against the thin outer shell, but no spicules of bone are seen.

The fibula was unaltered, but ere long this bone would have supported the weight of the body alone.

The epiphysis of the lower end of the tibia projected into the interior of the cyst, and though normal in thickness the surface of the cartilage

is at one point seen to be invaded or eroded, and the subjacent bone is not normal in colour. The shape of the cavity suggests the presence of one large central cyst and of numerous small cysts of unequal size at the periphery, showing no regularity in arrangement.

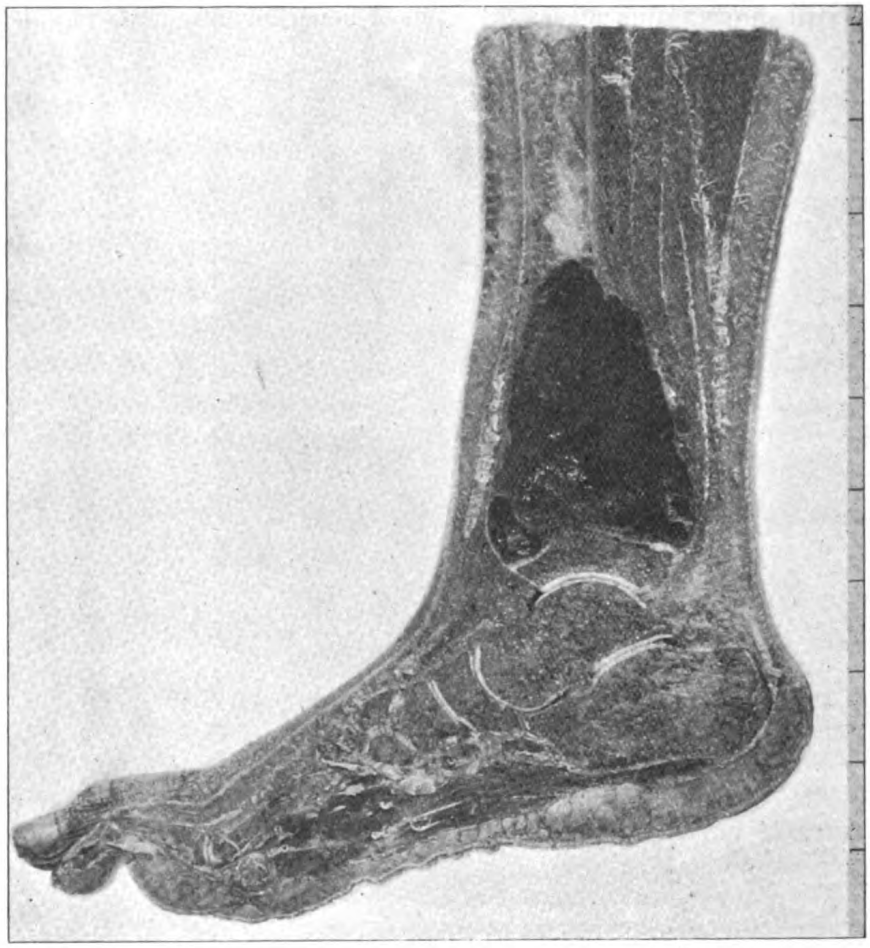

FIG. 2.

The growth of the cyst was proceeding actively in all directions, upwards in the shaft of the bone, backwards in the direction of the Achilles tendon, forwards as well and downwards, invading the epiphysis. Reference to the photograph (fig. 2) will show the changes in the epiphysis and in the bone-shell which have been described.

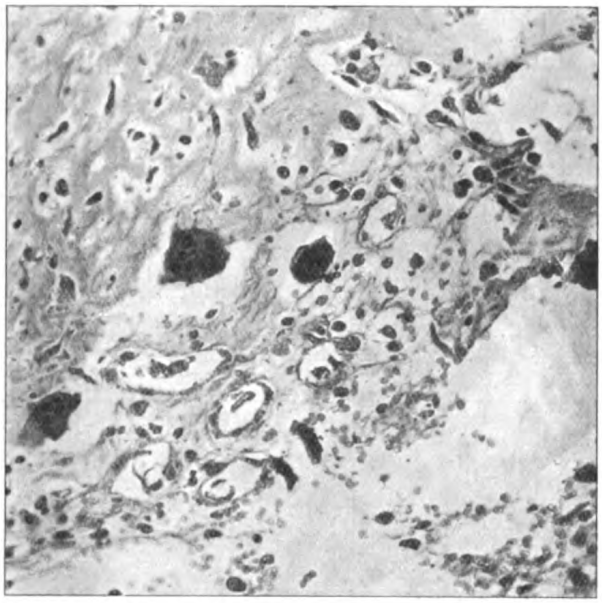

FIG. 3.

Showing absorption of bone by osteoclasts and granulation tissue. (× 250.)

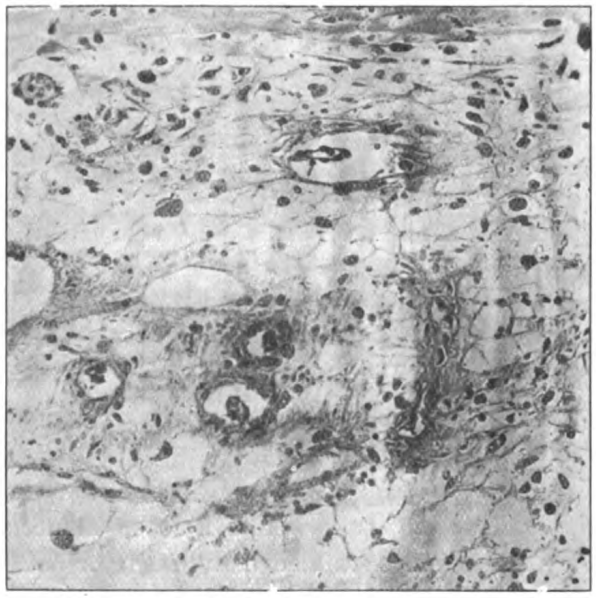

FIG. 4.

Characters of granulation tissue in wall of cyst. Note new blood-vessels, open network of fibres of connective tissue in which are lying small and large mononuclear lymphocytes and branched and spindle-shaped cells or fibroblasts. (× 200.)

MICROSCOPY.

There is no evidence that the cyst has developed from a growth, and no cartilage was found in connexion with the cyst formation. The formation appears to be caused by a process of absorption, probably starting in the marrow and gradually extending outwards with expansion of that part of the shaft. The wall of the cyst varies at different parts. Near the upper and anterior part the cyst membrane is extremely thin and closely adherent to the altered and atrophied bone, or bone in course of atrophy. Lower down complete absorption of the bone shaft

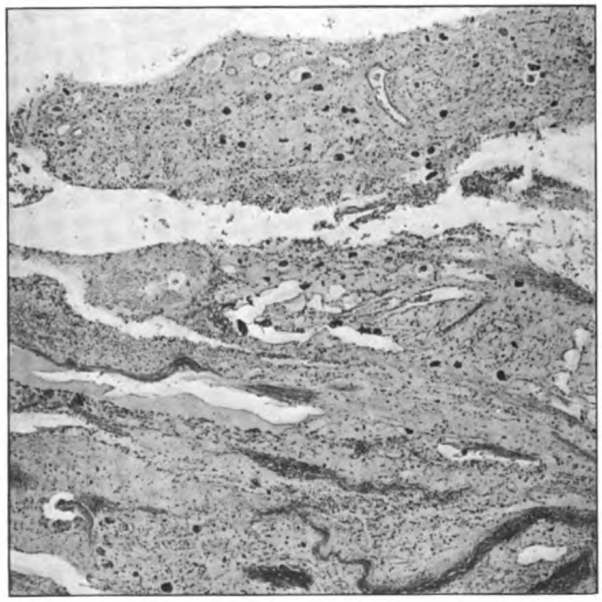

FIG. 5.
Cavity of the cyst. Note layer of granulation tissue with several osteoclasts, absorption of bone-tissue, and altered bone trabeculæ. (× 30.)

has taken place, and the membrane is in close contact with the periosteum. A part shows that the process of absorption is spreading through and destroying the epiphyseal cartilage line and invading the epiphysis. The membrane lining the cavity is of a loose structure and slightly adherent to the altered and expanded bony tissue or periosteum.

The microscopical characters of the cyst wall consist merely of altered bone in an active process of absorption due to the action of numerous phagocytic cells and osteoclasts (giant cells). The process of repair is also taking place as represented by granulation tissue making

up the "cyst wall." The scale on the photograph represents 1 in. division, so that the reduction is slightly less than one-half natural size of the leg and foot.

REFERENCES.

[1] MILNER. "Neuere Litteratur über Knochensystem," *Deutsch. Zeitschr. f. Chir.*, Leipz., 1908, xciii, p. 365.

[2] RUMPEL, O. "Archiv u. Atlas der normalen u. pathologischen Anatomie in typischen. Röntgenbildern. Über Geschwülste u. Erkrankungen der Knochen im Röntgenbild," Hamburg, 1908.

## DISCUSSION.

Mr. W. FEDDE FEDDEN said that three years ago he had a case essentially similar, except that the bone cyst was not as large. The cyst, in his case, was the size of a grape, and was bulging under the periosteum, above the lower epiphyseal line of the tibia. X-rays did not show any connexion with the epiphyseal line, and the cyst appeared as a clear space. His colleagues advised amputation. He incised the periosteum, and gouged the bone, finding only blood-stained watery fluid inside it. He scraped out the lining membrane, and the immediate microscopic report was to the effect that it was composed of myeloid cells. He sewed up the periosteum, and left the condition alone. A further microscopical examination was made, and the lining tissue was found to consist of osteoclasts and not myeloid cells. The patient was a girl aged 11; the wound healed by first intention, and she had had no further trouble. He thought fibrous tissue was filling up the cavity. He had not seen an X-ray picture of it during the last year.

Dr. FINZI said that in addition to Mr. Lett's excellent résumé of the radiographic appearances, there were one or two other points which would help in the diagnosis. First, there was the position of the tumour, which was close to the epiphyseal line. He recognized two types of cystic disease of bone. There was a lobulated type, of which a case and a skiagram were shown at the last meeting of the Section, nearly all the bone being affected, and there was a practically non-lobulated type, in which the tumour was on the diaphyseal side of an epiphysis, and it expanded the bone concentrically. The wall of this second variety showed in the radiagram as a sharp clear line. In Dr. Lediard's skiagram that outline was not quite sharp, and he thought a possible reason was that the bone had been so expanded that there was a little periostitis, and a faint shadow could be seen round the tumour, caused by the periostitis, which made it difficult to diagnose. In myeloid sarcoma there was usually some rough edge of bone along the side of the cavity, and the end of the cavity was not cut off so sharply as in that specimen. He had seen three cases in the humerus, one of which was shown at the Section last year,[1] and in one the surgeon had treated the case conservatively in the hope that a spontaneous fracture which had occurred might induce a healing process. They had been content from the X-ray diagnosis that it was a simple cyst, but the case was being carefully watched and skiagraphed at regular intervals.

[1] *Proceedings*, 1910, iii (Clin. Sect.), p. 192.

## A Case of Septic Gastritis.

By W. P. Herringham, M.D.

Male, aged 44. For three months epigastric pain, dull, aching; relieved after taking food, but returning in an hour; no vomiting or melæna; has not lost flesh.

On admission (February 2, 1911): Severe pyorrhœa alveolaris. A tender spot 1 in. above the umbilicus to right of mid-line, none behind; no cutaneous hyperæsthesia. A week later the tender spot was to left of mid-line. *Streptococcus salivarius* was isolated in pure culture from the dental discharge.

February 4: A stomach-tube passed into the starving stomach in the morning before breakfast without result, but on adding 300 c.c. of sterile water some ounces of turbid fluid containing flocculent masses were withdrawn. *Streptococcus salivarius* was isolated and cultivated. A few diphtheroid bacilli and Gram-negative cocci were also found. A vaccine was prepared and injected. The gums were carefully treated with hydrogen peroxide. Bismuth salicylate in 15-gr. doses was given thrice daily. Creosote in 2$\mathfrak{m}$ doses was also given thrice daily.

February 6: A test meal showed that the proportion of HCl during digestion was up to the normal. Both of these tests were repeated a fortnight later with the same result.

March 6: A third test of the secretion of the starving stomach showed: (1) That it contained living streptococci; (2) that the streptococci did not multiply in it when incubated; (3) that living streptococci inoculated into it perished.

Vaccination has been performed every five days in rising doses. The epigastric pain is very much better. The digestive leucocytosis is not normal.

### DISCUSSION.

The President (Sir A. Pearce Gould) said that last November he saw a patient with severe membranous colitis. She had pyorrhœa alveolaris, and a bacteriological examination showed that the predominant organism in the fæces was the same as that in the mouth. He had a vaccine prepared, and she was treated by that; at the same time a dentist had put the mouth right. At one time she lost the membranous colitis altogether, and the vaccination was suspended for a time. The last report was that there was some return of the mucus, and vaccine treatment was again being given.

Mr. GORDON WATSON said he had at present under his care at St. Bartholomew's Hospital a case which demonstrated the relationship between pyorrhœa alveolaris and consecutive arthritis. A great deal had been written about these cases of arthritis secondary to such conditions as pyorrhœa, but bacteriological proof was seldom obtained. The patient in question was suffering from chronic synovitis of the left knee; he also had pyorrhœa. The joint was aspirated under strict aseptic precautions, and some turbid synovial fluid withdrawn. From this fluid a pure culture of *Streptococcus salivarius* was obtained by Dr. B. Klein. Subsequently cultures were taken from the gums, and from the root of a stump, and from these *Streptococcus salivarius* was also cultivated. Vaccines were prepared, and successfully employed in the cure of the synovitis and pyorrhœa.

Dr. HERRINGHAM replied that it was not strictly correct to say that it was only the active stomach secretion which was bactericidal. He asked the bacteriologists whether the starving gastric secretion was capable of allowing the organisms to grow, and they experimented with the fluid, which was diluted with water. It was divided into two parts. The first part (*a*) was found to contain 10,000 living streptococci per cubic centimetre; it was incubated at 37° C. for eighteen hours, and at the end of that time the streptococci only numbered 100 per cubic centimetre. The second part of the fluid (*b*) was heated to 60° C. for half an hour, to sterilize its bacterial content; it was then inoculated with one drop of the original solution containing 10,000 living streptococci per cubic centimetre; after incubation for eighteen hours it was sterile. But as so many streptococci were being poured into the stomach it was not strong enough to destroy all the micro-organisms which came into it. The work was not yet finished.

## Two Cases of Secondary Anæmia associated with Achylia, with Comments.

By ROBERT HUTCHISON, M.D.

### CASE I.

I. P., AGED 59. Seen April 14, 1910, complaining of weakness, shortness of breath, flatulence, and insomnia. Had been losing blood from hæmorrhoids for years.

Physical examination: Well nourished, very anæmic and sallow, colour resembling that of pernicious anæmia. Red cells, 3,225,000; hæmoglobin, 30 per cent.; index, 0·4; white cells, 4,000; poikilocytosis present; no normoblasts; differential count, normal. Test meal: Total acidity, 10; free HCl absent. Knee-jerks feeble, other organs normal. The hæmorrhoids were removed by operation.

March, 1911: Looks quite healthy. Still some flatulence and insomnia. Red cells, 6,000,000; hæmoglobin, 100 per cent. Stomach contents as before.

CASE II.

F. F., aged 51. October 15, 1910: Complains of weakness, breathlessness and flatulence of some months' duration. Has had bleeding piles for two years.

Physical examination: Markedly anæmic, well nourished, hæmic murmurs present, knee-jerks present, organs normal. Blood: Red cells, 4,500,000; hæmoglobin, 35 per cent.; index, 0·4. Films show the character of a secondary anæmia. Test meal: Total acidity, 20; no free HCl. Piles ligatured. Two weeks later, blood just the same. Total acidity, 16.

March, 1911: Now reports himself as "quite cured." Stomach contents not again investigated.

*Comments.* — Achylia, well known in association with pernicious anæmia. These cases suggest that any severe anæmia of long duration may also be associated with it. Note the persistence of the achylia in the first case after the disappearance of the anæmia. Simulation of latent carcinoma of the stomach by such cases.

## A Subsequent Report on a Case of Excision of the Larynx, Lower Part of the Pharynx, and Upper End of the Œsophagus for Malignant Disease (Squamous-celled Carcinoma) of those Structures.

By ARTHUR EVANS, M.S.

THE patient, a female, aged 40, was shown at a meeting of the Clinical Section on November 12, 1909. She was first seen on September 19, 1909, and had such extensive malignant disease of the larynx and pharynx that its complete removal was considered practically impossible; this was explained to the friends and it was suggested that she should be allowed to remain unoperated upon, and that when the disease had so far advanced that any trouble was experienced in swallowing liquids gastrostomy should be performed. The risks of an attempt at extirpation were pointed out, and the unenviable condition of the patient, after even a successful operation, was described.

The patient returned on September 25, and at the urgent request of the patient and friends, I consented to attempt the removal of the growth.

A full account of the operation will be found in the *Proceedings* of the Society.[1] The patient had at that time a fistulous opening in the lower part of the neck, about 1¼ in. above the tracheal opening; over this fistula a celluloid cup was fastened by an elastic band which passed round the neck, the cup was connected with the gastrostomy tube, and by means of this the patient was able to take fluids by the mouth, which were then led via the neck fistula and the gastrostomy tube into the stomach. At that time the arrangement was not working well, for, in order to prevent leakage, it was necessary to fasten the band so tightly round the neck that the patient suffered much discomfort, and any leakage from under the celluloid cup was at once sucked into the trachea. I accordingly expressed my intention of moving the position of the fistula to one much higher up the neck.

November 13, 1909: I closed the sinus in the lower part of the neck and made a new one immediately below the hyoid bone; to make this opening permanent I fashioned four flaps from the surrounding skin and with them lined the walls of the sinus. Into this opening I placed the short end of a rubber empyema tube, using the largest that could be introduced, and this was kept in position by means of a piece of tape which passed round the neck and was tied into the holes in the flanges of the empyema tube; the long end of the empyema tube was connected with the gastrostomy tube. At the time of this operation I was not able to detect any enlarged glands in the neck.

What remains to be told had best be done by quoting from letters received:—

November 24, 1909: "The swallowing tube does not act well, I am sorry to say, but I hope it will become better as the wound heals."

December 1, 1909: The sister writes—"All last week the swallowing tube would not act, and we were bitterly disappointed, but since Sunday 'the scene is changed.' You will be delighted to hear that now she eats almost everything. Yesterday she had minced pheasant and bread sauce and vegetables for dinner, then stewed apples and cream, all of which she thoroughly enjoyed. Bread and butter she has, milk, chocolate, and in fact whatever happens to be going, all by mouth! Isn't it wonderful?"

[1] *Proceedings*, 1910, iii (Clin. Sect.), pp. 44-47.

April, 1910: "The week after Easter I was able to get weighed and I have gained over a stone since I was in London."

In July, 1910, this patient sent me her wedding card!

February 23, 1911: "I am glad to tell you I am feeling very fit indeed. If it were not for my cough, which still bothers me, I could say I never felt so well in my life. . . . My whisper seems to be stronger; I do not experience any difficulty in doing my shopping. The swallowing tube acts very well. Some days it is really perfect. When I tell you I went to dinner at the Queen's Hotel the last time I was in Birmingham with my husband, and dined in a room with dozens of people, you will agree with me it is very wonderful. Of course, it is not always so well behaved, but I have very little to complain of. I have my cousin staying with me now, and every day we have had very long walks of three and four miles—this will tell you I am strong."

I have made this second report as I think the case of sufficient interest to merit it. The disease was most extensive, the outlook could not have been much worse, and, eighteen months ago, I think most surgeons would have felt, as I did, that the case had passed into the class of the "inoperable," and yet, having had removed the larynx, a great part of the pharynx, the whole of the cervical œsophagus, and as much of the thoracic œsophagus as one's fingers could reach, the patient writes: "Were it not for my cough, I never felt so well in my life." But to me the most instructive feature of the case, and certainly the most novel, is the fact that it is possible by a most simple arrangement to provide an efficient food-track from the mouth to the stomach when the œsophagus route has been interrupted; for this patient, very soon after the operation, could take ordinary food *apparently in the ordinary way*, for no onlooker could guess that an india-rubber extra-thoracic œsophagus took the place of the normal one.

Mr. SAMPSON HANDLEY congratulated Mr. Evans on the case, as there had been very few such in this country, and none so successful. Only those who had performed it knew the anxiety in connexion with such a terrible operation. He reported a similar case to the Section three years ago,[1] and the further history was that she died nine months after the operation from recurrence in the upper part of the œsophagus. He believed the operation gave relief for a time, but he was not certain that it was worth doing in that case. He was not anxious to have any more cases of the same sort.

[1] *Proceedings*, 1908, i, p. 66

# Clinical Section.

May 12, 1911.

Sir A. PEARCE GOULD, K.C.V.O., President of the Section, in the Chair.

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## Case of Spondylitis, with Progressive Muscular Contracture (? Myositis Fibrosa).

By WILFRED HARRIS, M.D.

W. A., AGED 33, was invalided from the Army three years ago on account of constant pains in the back and shoulders. A year previously he had relapsing fever in West Africa, but has never had any form of venereal disease. The pains were severe for two months, during which time he noticed his back and neck were becoming stiff and stooping. This condition has become progressively worse ever since. He has taken 10 gr. of aspirin daily for the last two years, as he finds the pains return if he leaves off the drug for two days. He was thought to be suffering from pulmonary tuberculosis and caries of the spine, and was sent to Frimley Sanatorium for ten months, where for a time he wore a spinal jacket and support to the head.

Present state: He is very weak, and unable to dress and undress alone. The spine shows general kyphosis and is quite rigid, the head being held forwards, with only very slight lateral and antero-posterior movements possible. The chest is not flattened, but is absolutely rigid, breathing being entirely diaphragmatic. The shoulders are very stiff, owing to muscular spasm and contracture fixing the scapulæ, but the shoulder-joints are normal. Under chloroform anæsthesia the scapulæ can be moved fairly freely, but the arms cannot be raised much above the horizontal, owing to contracture of the pectoral muscles. The hip-joints and lower extremities are perfectly normal, and there is no evidence of any rheumatic affection. Skiagrams show no abnormality of the spine or thorax.

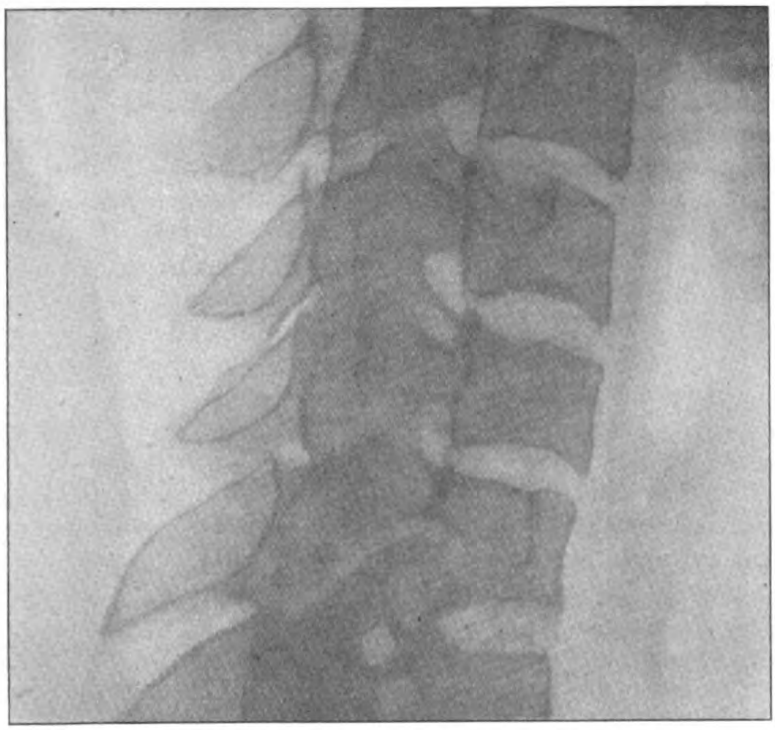
## Rigidity of the Spine.

By H. D. Rolleston, M.D., and G. P. Humphry.

Male, aged 26. His father (6 ft. 6 in.), mother, brothers, and sisters are all healthy except one sister, who has chorea. He has not had any injury, enteric fever, gonorrhœa, or syphilis, and was healthy until January, 1905, when he had acute rheumatism and was in bed for six months. In December, 1906, he had a similar attack, and was in bed for four months, his heart being affected. In April, 1909, he had another attack, and on this occasion his back and neck began to get stiff. In June, 1909, he was admitted into St. George's Hospital, with what appeared to be ordinary subacute rheumatic fever, and reacted to salicylates. It was not until he began to convalesce that the stiffness of the spine was noticed. He then went to Bath for treatment and was somewhat improved. He noticed that the stiffness of the spine varied considerably from time to time. In March, 1910, he was treated with leucodescent light without benefit. In May, 1910, while at Littlehampton, the rigidity passed off, but returned after he had been in London three weeks, and has remained since. Concurrently with the spinal rigidity he has been subject to sudden shooting pains in the back which spread all over the body.

Present condition: There is marked kyphosis and rigidity of the spine; when placed on the floor the first part of his back to touch the floor is the tenth dorsal spine; when in this position the external occipital protuberance is 12½ in. from the floor. This is maintained in deep general anæsthesia. There is slight lateral curvature in the dorsal region to the right, and a compensatory lumbar curve to the left. The head can be moved vertically for 1 in.; rotation of the head, measured by the movement of the chin, can be carried out to an extent of 1¾ in. to the right of the middle line, and ¾ in. to the left of the middle line. Under an anæsthetic these movements were suddenly stopped as if by a bony obstacle. The right arm is smaller than the left, and movement at the shoulder-joint is restricted, the arm not reaching the right angle with the trunk; this appears to be due to contraction of the pectoral muscles. The movements of the

left arm are practically normal. The thighs can be flexed to a right angle at the hips. The big toes are remarkably long; this he states to be hereditary. The chest is flattened, and there is only ¼ in. expansion (30¼ in. to 30½ in.). Breathing is almost entirely diaphragmatic (expansion of abdomen 2 in.), and the abdominal muscles are constantly rigid. The apex beat is in the fifth space in the nipple line, and there is a mitral systolic murmur. There is no alteration in cutaneous sensation. The knee-jerks are present.



Rigidity of the spine. Skiagram of part of cervical spine.

Dr. Allpress Simmons, who has kindly provided the skiagrams, reports that the repeated radiographic examinations made during the past year do not suggest that there is any bony ankylosis of the vertebræ, but that the appearance of the anterior common spinous ligament in the upper cervical region is compatible with the view that there may be calcification in that ligament.

## DISCUSSION.

Dr. ROLLESTON added that the title "Rigidity of the Spine" was purposely chosen because the skiagrams did not show indubitable evidence of ossification. Although the term "spondylitis" did not necessarily imply that there was ossification, there was some connexion between the term "spondylitis deformans" and ossification of the anterior common ligament. The case, like that of Dr. Harris, did show some limitation of movement in the upper extremity, the rhizomelic condition, but it was present on one side only.

Dr. F. PARKES WEBER said it was remarkable how similar cases of the disease were to each other. The patients were mostly thin persons, and were nearly always bent in the kyphotic posture. The only exception to that which he knew of was a man aged 43, shown before the Medical Society in November, 1903,[1] by Dr. Essex Wynter, under the title "Poker Back," the patient's back being unusually flat and straight, "like a poker." He (Dr. Weber) had illustrated a typical example of the disease in the *Medico-Chirurgical Transactions* for 1903.[2] The patient in question was a middle-aged man who used to live near the German Hospital. He (Dr. Weber) first saw him about 1895, and he heard that he died at home in 1909 (possibly of pleurisy), when 56 years old. This man spoke of a feeling as if there were an iron band round his chest, and there was no movement in his ribs, the breathing being entirely diaphragmatic; he scarcely moved his head at all, and the movements at the hip-joints were much limited, as also were those of the shoulders, though he could move his elbows, hands, knees, and feet. He also had ankylosis of the jaw, but he could feed himself through an opening between his teeth, and through the same opening he could also smoke a pipe. He showed the same condition of muscular rigidity that was noted in Dr. Harris's case, but there was no evidence justifying the supposition that such rigidity of muscles was due to fibrous myositis, as suggested by Dr. Harris. The rigidity of muscles was far more likely to be due to muscular hypertonicity similar to that which frequently occurred in connexion with disease of the large articulations. He did not know whether it was the rule to have the knee-jerks increased in such cases, but in the German Hospital case the knee-jerks were much increased. The French (Pierre Marie) called the disease "spondylose rhizomélique," and the word "spondylose" was probably chosen because the disease was not a true spondylitis. They were justified in calling it "rhizomélique," even when there was no true bony fixation of the hip-joints or shoulder-joints, since in the patient's ordinary condition, owing to muscular rigidity there was generally more or less serious limitation of movement in the hips or shoulders, or both. Anatomical preparations existed, he believed, showing calcification or ossification in the fibrous ligamentous tissue around the intervertebral disks.

[1] *Trans. Med. Soc. Lond.*, 1905, xxvii, p. 331.
[2] *Med.-Chir. Trans.*, 1903, lxxxvi. p. 72, pl. ii.

Dr. POYNTON, referring to Dr. Rolleston's case, said he had been making some observations on stiff spines in children. In order to introduce his points he would first allude to the well-known cases in childhood where around the knee-joints or elbow-joints there were nodules and thickenings of the bones, giving rise to the peculiar "growing out" rugged appearance of the articulations. In spite of treatment these cases persisted, with very little pain, sometimes lasting for a long time. If this process could occur under one's eyes, it might, he thought, occur in some of the deep-seated joints, such as those between the vertebræ, and thus cause a chronic stiff spine. He had paid some attention, accordingly, to rheumatic stiff neck in children, which he had thought was a transient process. His experience, however, was that such cases might last many months. When there was stiff neck in a child lasting any time, it should certainly suggest, not rheumatism, but spinal caries. Yet some of these cases were not due to caries. A most interesting case which he hoped to show later illustrating this point was the following: A child had been seen by a surgeon for stiff neck, and the diagnosis of spinal caries was made, and the child placed in Phelps's box. The child was brought to him later for an attack which he (Dr. Poynton) could only regard as one of rheumatic pericarditis and multiple arthritis; although it was possible, one knew, to get tuberculous caries and tuberculous pericarditis and acute arthritis. When he went carefully into this case, which was thought now to have paraplegia secondary to caries, the symptoms he found did not fit in with paraplegia, and he was suspicious that the stiff neck had not been due to spinal caries, but was of rheumatic origin. A year later the child was brought back with another attack of pericarditis, very severe, with arthritis and nodules. The child was nursed through the attack, and still had a stiff spine. Later he had the child taken out of the Phelps's box, for he felt convinced that it was not a case of tuberculous disease, but acute rheumatism with spondylitis. Now the child still had a stiff neck and pain down the arms, and was getting wasting of muscles in the upper extremities. Possibly, then, this was an example of the early development in childhood of a disease such as was seen in Dr. Rolleston's case. He thought, too, some cases called spinal caries were really examples of rheumatic stiff neck and damage to the vertebral column from rheumatism.

Dr. ESSEX WYNTER remarked that a suggestion had been made that these cases were osteo-arthritis of the spine, or that there might be ossification of the anterior spinal ligament. From the point of view of osteo-arthritis of the spine, he had seen six or eight cases of the kind in his own wards, but never one in which the limbs were involved. He had also seen sixty or eighty cases of osteo-arthritis in the limbs, in not one of which was the spine involved. He was unwilling, therefore, to accept that this disease was due to osteo-arthritis of the spine. The skiagrams showed no undue ossification in relation to the spine, and the fact that there was synchronous ossification of the costo-vertebral joints showed that the condition was not to be explained on that idea. The only case in which he had seen recovery occur was in a woman aged 30, who had not suffered from the condition long, and she recovered completely after treatment at Droitwich.

Mr. FRANK KIDD asked whether there had been treatment by means of jackets. He had recently treated three very resistant cases of rheumatic torticollis, none of which reacted to salicylates until he put them into poroplastic jackets, whereupon they soon got well.

Dr. ALLPRESS SIMMONS said he had taken a number of skiagrams of Dr. Rolleston's case, which he exhibited, and remarked that there was no evidence of ossification. The only point was whether the anterior common ligament in the cervical region was unduly dense in front of the bodies in the upper cervical regions. He showed skiagrams of two normal cases in which this unusual density was not seen. He did not know whether calcification of the anterior common ligament had ever been found post mortem in cases similar to Dr. Rolleston's.

The PRESIDENT (Sir A. Pearce Gould) thought there was no doubt about there being density of the anterior common ligament in the cervical spine in Dr. Rolleston's case; and in Dr. Harris's he thought there was clear evidence of synostosis of the vertebræ. He was doubtful whether there was sufficient justification for the addition of the title of myositis fibrosa to Dr. Harris's case. It appeared to him to be true contracture of the muscles, and that there was no evidence of fibrous change in the muscle. In reference to Dr. Wynter's remark about the joints not being affected in his case, both the cases shown that evening had affections of one shoulder-joint, and such association was well known. He felt interested in Dr. Poynton's reference to the difficulty in diagnosis which sometimes occurred in those cases. Two years ago he saw a case in which there had been a sharp difference of opinion between certain surgeons who had seen a young man with disease in his neck. One surgeon was extremely anxious to cut down and remove half the arch of the atlas, and held out the prospect of very speedy death if that serious operation were not immediately done. Further opinions were taken, and the operation was not recommended. As far as he knew that patient was alive now; certainly he was twelve months after the event. Soon after he saw that patient, his brother was brought to him with an identical condition of the cervical spine. In an early stage a difficulty in diagnosis undoubtedly existed.

Dr. HARRIS, in reply, said his patient was treated at Frimley Sanatorium with a jacket, but no benefit resulted.

Dr. H. D. ROLLESTON, in reply, said the case had been treated by Dr. Allpress Simmons with light, vibration, and ionization, but with little or no improvement. Dr. F. E. Batten had suggested treatment with injections of fibrolysin. He had not employed it in this case because it might exert a dissolving action on parts of the body other than those intended. No jacket had been employed in this case.

## Cystic Disease of Kidneys.

By J. FAWCETT, M.D.

A. B., AGED 43, was admitted for anæmia and the two tumours described later. The "periods" had been profuse for two years, more so during the past six months. In October, 1910, there was some swelling of the ankles, and since that time the patient has been short of breath on exertion: she also complains of aching in the loins. The "lumps" in the abdomen were discovered three weeks before admission. She has been in the hospital for four weeks. The menorrhagia has ceased, and great improvement has taken place in her general condition of health. The tumours are *in statu quo;* they are situated one in each side of the abdomen, reaching from the costal margin above well down into the iliac fossæ on either side and into the loins. They have a somewhat irregular, or sinuous, outline, and are of semi-elastic consistence. On the surface of the tumours several rounded "knobby" projections can be felt. Mr. Targett and Dr. Bellingham Smith are of opinion that the tumours have no connexion with the pelvic organs. Urine: Specific gravity 1010 to 1020; acid; a trace of albumin present; a few casts found on several occasions. Quantity secreted in the twenty-four hours has varied from 30 to 50 oz. Heart is not hypertrophied. Maximum systolic blood-pressure, 140 mm. Hg. No signs of disease have been detected elsewhere.

Dr. GALLOWAY said that there could be little difference of opinion in the diagnosis of Dr. Fawcett's case. The symmetrical position of the tumours in the flanks, their nodular feeling on palpation, sufficed to establish the diagnosis. A point of considerable interest, in respect of the patient's general condition, should be noted. Dr. Galloway had formed the impression from patients under his own observation that in cases of cystic disease of the kidneys persisting to adult life there also existed as a rule marked degeneration of the blood-vessels of the sclerotic type. Indeed, it appeared as if such cases might be considered as showing an extremely exaggerated example of what takes place in the granular or cirrhotic kidney, especially in regard to its influence on the heart and blood-vessels. A case showing this association had been under his care in Charing Cross Hospital. The patient was a man aged 42, who was admitted suffering from a recent right hemiplegia, with well-marked angio-sclerotic changes. Till a few days previous he had been in active occupation. Not only so, but he had actually been in the cricket team of the institution

to which he was attached and had been a successful bowler. During examination after admission it was found that he had cystic disease of the kidneys. He recovered from the hemiplegia to a large extent, but gradually lost strength and died in what seemed to be a uræmic state. Examination post mortem corroborated the diagnosis of cystic degeneration of the kidneys and also of the marked angio-sclerotic condition of the blood-vessels throughout the body. It was therefore very interesting to note that in Dr. Fawcett's case there seemed to be very few signs or symptoms of vascular degeneration.

## Specimens illustrating the Removal of Foreign Bodies from the Air-passages and the Œsophagus.

By HERBERT TILLEY, F.R.C.S.

(1) Portion of rabbit bone, which had been impacted in the right bronchus for more than three years, and had produced symptoms of bronchiectasis; the bone was removed by direct bronchoscopy.[1]

(2) Portion of mutton bone removed by direct bronchoscopy from the right bronchus, wherein it had been impacted for ten days. For the opportunity of seeing and operating upon this case I am indebted to Mr. Godlee, who described it in his lecture on "Foreign Bodies in the Air-passages," published in the *Lancet* of June 18, 1910.[2] I cannot do better than insert his own description:—

It was that of a young lady who, while eating some mutton broth, swallowed a piece of bone the wrong way. She was foolish enough to ask the advice of a chemist, and he had the hardihood to try to push it down with the handle of a tooth-brush. A spasmodic cough quickly set in and lasted for two hours. The medical man who was called in could naturally see nothing; she went on coughing more or less continuously for four days, and, after ten days, came to London with a temperature of 100° F. A very indefinite result was obtained by an X-ray photograph, and when I saw her, four days afterwards, the temperature was 101° F. in the morning and 102·5° F. in the evening. There were a little deficiency of movement in the right lower lobe and a slight deficiency of the entry of air into this part of the lung. A very few crepitations were also to be heard. The cough for the moment was in abeyance, but I was told that several attacks had occurred in the course of the day. The physical signs were so slight that if one had not been aware that such is often the case in the early

[1] See *Proceedings* (Laryngol. Sect.), 1911, iv, p. 96.

[2] *Lancet*, 1910, i, p. 1668.

stages of this condition, one might have been excused for counselling delay; but I strongly urged that Mr. Tilley should be asked to see the patient next morning, and in this case the piece of bone was readily demonstrated to us at the lower end of the right bronchus, and was removed in the course of a few minutes with forceps. Already, after ten days' residence in the bronchus, it was soaked with pus and horribly offensive. The patient has made a complete recovery.

The portion of bone measured $\frac{7}{12}$ in. in length, $\frac{1}{3}$ in. in breadth, and $\frac{1}{6}$ in. in thickness.

(3) Metal cap of lead pencil removed from left bronchus by direct bronchoscopy. Skiagram exhibited.

(4) A pin, $2\frac{1}{4}$ in. long, lodged for two months in the left bronchus. The patient, a female, aged 23, when seen by Sir Thomas Barlow, on June 16, had a few fine crackling râles at the third left costal space close to the sternum with very slight impaired resonance. The temperature was 99° F. The question of early phthisis had been raised as there had been slight cough with, once or twice, expulsion of a little blood-stained mucus. The cough was not at all paroxysmal and was not clangy in character, neither was there any dyspnœa or local discomfort. The patient referred the onset of her symptoms to a date two months previously when, having a pin in her mouth, she "laughed and swallowed it." A stereoscopic radiograph defined the pin, which was lying almost horizontally, the head being outwards 6·8 c.m., the point 2 cm. from the middle line, and opposite the middle of the fifth dorsal vertebra. The depth from the skin of the back was 8 cm. The excursions, which are indicated by the broad band in the skiagram, were vertical, indicating that they depended on the action of the heart. It was thus evident that the pin occupied the left main bronchus. On June 26 the lower part of the pharynx, the larynx, and trachea were anæsthetized with a 20 per cent. solution of cocaine, and general chloroform narcosis was induced. The bronchoscope tube was passed, and by means of the "extension" tube the left bronchus was entered, when a small portion of the black shaft of the pin could be seen; it was fixed obliquely across the lumen of the bronchus. The pin was seized by forceps passed through the bronchoscope, but it was so firmly fixed that it could not be withdrawn nor loosened from its position. Firm traction resulted in the pin snapping and the pointed half was removed; the remaining portion could not be found owing to slight bleeding and the free secretion of mucus in the bronchial tube. On the evening of the same day, however, the patient spat out the remainder of the pin, and

two days afterwards left the hospital. Beyond slight soreness of the throat she complained of no discomfort.

(5) Teat of "comforter" removed from the œsophagus of a child 4 days old by direct œsophagoscopy.[1]

(6) Penny removed from the œsophagus of a girl aged 13; it had been impacted for thirteen days.

(7) Farthing removed from the œsophagus of a boy aged 5; it had been impacted for five hours.

(8) Safety-pin removed from the œsophagus of a child aged 3 months.

## DISCUSSION.

Mr. CARLESS said all would wish to congratulate Mr. Tilley on the excellent success which had attended his efforts in this new direction. Personally he had not had any experience in what was called upper bronchoscopy, passing the bronchoscope through the mouth, but he had had one experience with lower bronchoscopy, passing it through a tracheotomy wound which had been present for some time. The patient had been wearing a silver tube, and the cannula becoming corroded slipped down into the trachea. A doctor with a rather shaky hand attempted to locate it with a probe, and as the patient gave a deep inspiratory gasp the probe was also sucked down. Mr. Carless, on seeing him, first attempted removal with polypus forceps. The trachea was cocainized, and after a time the tracheotomy cannula was extracted; but although the probe was felt it could not be removed. He arranged for the patient to be X-rayed, and the local radiographer reported that the probe was lying in the middle line, straight up and down, mistaking the line of the vertebral spines for it. He (Mr. Carless) knew that was wrong, and so had the patient sent to King's College Hospital, where he was screened, and it was then seen that the probe was lying across the chest in the left bronchus, moving up and down with every beat of the heart. This accounted for the fact that it did not show in the X-ray photograph. The bronchoscope was passed through the wound in the trachea, and the probe was easily demonstrated in the bronchus and removed. The importance of this case was to emphasize the fact that in these cases the radiographic examination should be made with a screen or with an instantaneous photographic exposure.

Mr. FRANK KIDD asked why Mr. Tilley condemned the coin-catcher. He (Mr. Kidd) in one period of six months in the out-patient department, had removed nineteen halfpennies with coin-catchers. There were a very large number of cases of the kind in the London Hospital every year in which the coin-catcher was used, and for many years there had been no bad results as far as he was aware.

[1] See *Proceedings* (Laryngol. Sect.), 1909, ii, p. 132.

Mr. LAWRIE MCGAVIN agreed with Mr. Tilley's opinion concerning coin-catchers. He had once tried to extract a tooth plate at the level of the bifurcation of the trachea by means of a coin-catcher. He gripped it with a catcher, but could not shift the plate, and then found he could not release the catcher. The man was becoming moribund, and for lack of better treatment Mr. MacGavin pulled hard; the plate came out, but was followed by an alarming gush of blood. Since then he had left the coin-catcher alone. He agreed that in these cases the only suitable method was bronchoscopy. It was a very valuable addition to our methods of treatment.

Mr. HERBERT TILLEY, in reply, said he was surprised to hear from Mr. Kidd of his great success with the coin-catcher; but that did not convince him that it was the best method. If the bronchoscope required much skill in order to manipulate it or to get accustomed to it there might be some excuse for not employing it, but direct bronchoscopy and œsophagoscopy was not difficult. He had seen coins in the œsophagus missed by the coin-catcher, and contended that it was better practice to see a foreign body and the condition of the tissues around it before attempting to remove it than to work in the dark and depend on chance.

## Graves's Disease in a Boy, commencing at the age of 10.

By W. ESSEX WYNTER, M.D.

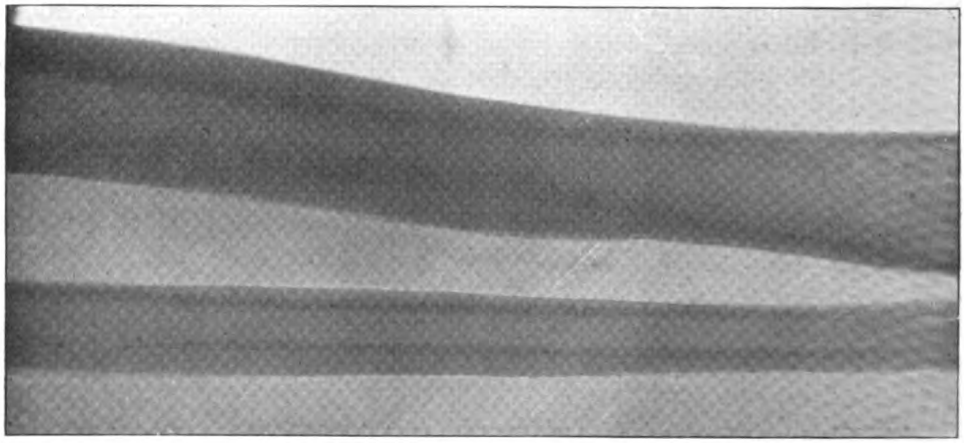
J. W. H., A BOY, aged 11, exhibited undue prominence of the eyes at the age of 10, nearly a year ago. When admitted to Middlesex Hospital, on March 16, 1911, there was obvious proptosis, with all the usual signs. The thyroid gland was enlarged, both isthmus and lobes; the fingers, when extended, exhibit fine tremor: the skin is moist and flushed, and about the hands and neck shows yellowish pigmentation. There have been no cramps, but the patient has faint attacks, flushes, and occasionally shows some temporary puffiness of the face. There is incontinence of urine; the urine is clear, amber-coloured, acid, specific gravity 1015, and has contained a trace of albumin. The pulse has ranged from 92 to 124. Thyroidectin has been given in 5-gr. doses twice a day. On two occasions pituitrin was substituted, but the pulse rose to 110 and 124 under its influence, falling to 96 when it was discontinued.

The case is a mild one, but exceptional on account of the sex and age of the patient.

## Recurrent Attacks of Post-typhoidal Osteitis.

By H. D. Rolleston, M.D.

Eleven years ago the patient, a man, aged 32, had enteric fever, complicated with thrombosis in the left femoral vein, at Nice. Since then he has had attacks every spring or winter of pain and swelling at the junction of the lower and middle thirds of the left tibia. There has never been any discharge of pus or perforation of the skin. Usually the attacks last three weeks, but this attack has been the most



Post-typhoidal osteitis.

severe. Syphilis is denied and a Wassermann reaction is negative. Widal's reaction is negative.

On admission there was a raised, red, painful œdematous swelling about the size of a hen's egg at the junction of the lower and middle thirds of the left tibia. There was a small soft area in the middle suggesting a "shirt-stud" abscess. At this point the girth of the left leg is $\frac{1}{2}$ in. more than that of the right. With rest and lead and opium applications the inflammation has subsided, but a node can be felt.

A skiagram taken by Dr. Allpress Simmons shows much osteitis and periostitis and narrowing of the medullary cavity, but no evidence of shirt-stud abscess.

I have not been able to find an exactly similar case. W. W. Keen[1] records a case of recurring attacks of periostitis leading to abscesses which certainly extended over a period of eight years, and possibly longer; in this case various bones, the right humerus, both femurs, and the sternum were involved in eight or ten successive attacks.

Mr. W. G. SPENCER remarked that Sir William Allchin had under his care for years a boy who had recurrent attacks of pain in the tibia after enteric fever; subsequently a shirt-stud abscess formed in his tibia, and after surgical treatment it healed. Later on he was re-admitted into hospital with general peritonitis. Post mortem there was found to be typhoid necrosis of the lower end of the sternum, and an abscess had burst into the peritoneal cavity. This was eight or nine years after his original attack of enteric fever. No chronic ulceration only scars were found in examining the ileum. Typhoid bacilli were found in the shirt-stud abscess in the tibia, but not later in the peritonitis.

## Case of Ectopia Vesicæ in a Female Child.

By E. MUSGRAVE WOODMAN, M.S.

FEMALE child, aged 2, suffering from extroversion of the bladder of congenital origin. The parents are perfectly healthy, and possess two other children, a boy aged 6 years and a female infant aged 6 months, both of whom are of normal development. The mother states that when three months pregnant with this child she received a severe blow in the abdomen following a fall, and it is to this she attributes the deformity.

The patient is a quiet, happy child, but exhibits well-marked bony signs of rickets in the head and lower extremities and a high-vaulted palate, and she does not yet run alone. The symphysis pubis is wanting, and the pubic bones badly formed, there being a gap in the pelvic ring anteriorly of 2½ in. The bladder wall in front is absent, and its posterior wall is represented by a convex area 1½ in. by 1¼ in. in diameter, and covered by red granulations. On the surface of this area the ureters open at the apices of their papillæ, that on the right side being placed ¼ in. below that on the left, and jets of urine can be seen

[1] Keen, W. W., "Complications and Sequels of Typhoid Fevers," Lond., 1898, p. 123.

to be projected from these orifices alternately and at frequent intervals. The urethra is represented by a deep groove, which leads from the bladder area above to the anterior surface of the hymen below, and is fringed on either side by the bifid clitoris and the cleft anterior end of the labia minora. The vagina, hymen, perineal septum, and rectum are normal.

### DISCUSSION.

Mr. WOODMAN laid emphasis on the comparative rarity of this condition in the female, for although the deformity is said to occur in one child out of every 6,000 born, Trendelenburg[1] in 1906 was only able to collect from the literature the records of thirty-five cases occurring in females. He also discussed the various operations which had been projected for this condition, and expressed himself as in favour of extraperitoneal engrafting of the bladder into the rectum.

Mr. SPENCER expressed the hope that Mr. Woodman would not try the Trendelenburg operation. He believed the only successful case which had been published was one in which transplantation was done into the rectum after removing the uterus. The latter must be done. If the ureter were implanted higher up there would be infection of the kidneys.

## Congenital Deformity of Femur; Absence of the Upper Epiphysis and of Half the Shaft of the Left Femur.

By FRANK KIDD, F.R.C.S.

H. T., AGED 1 year and 5 months. From birth the left leg has been shorter than the right. Palpation reveals that the left femur is less than half the normal size. Movements at the hip are too free in all directions, and there appears to be no hip-joint. The child can flex, extend, adduct, and abduct the thigh. The skiagram shows that the upper half of the shaft of the femur and the upper femoral epiphysis are absent. The upper end of the bony shaft is conical; the lower end and epiphysis appear normal. There are no other deformities, and no sign of nervous disorder.

[1] *Annals of Surg.*, Lond., 1906, xliv, p. 281.

## Two Cases of Deformity of the Hands.

By CHARLES W. CHAPMAN, M.D.

ON February 23, 1900, two cases (father and son) of deformity of the hands, with absence of a radius in the child, were exhibited at the Clinical Society. The cases are fully reported, with reproduction of skiagrams, in vol. xxxiii of the Clinical Society's *Transactions*.[1] Both cases are now shown so that members may see how well the boy (now aged 15) can write.

## Carcinomatous Degeneration in a Chronic Dermatosis.

By CECIL ROWNTREE, F.R.C.S.

THE patient is a woman, aged 67, who for twenty-seven years has had an affection of the skin of the loin of doubtful nature. Eleven years ago carcinoma of the breast developed, and amputation was carried out (section shown). Two years after this operation ulceration made its appearance in the centre of the patch of dermatitis, and gradually extended until at the present time there is an excavated ulcer some 3 in. in diameter. The condition has undergone considerable improvement under X-ray treatment, but previous to this possessed the typical features of squamous-cell carcinoma.

### DISCUSSION.

Mr. ROWNTREE added that he brought the case in order to elicit opinions as to the nature of the chronic dermatosis which had resulted in carcinoma.

Dr. GALLOWAY remarked that it must be of interest to be quite assured of the nature of the skin affection which preceded the development of carcinoma in Mr. Rowntree's case. One or two possibilities occurred to his mind, but he had little doubt that the preceding condition which had lasted for years on the body, not only in the right groin but in other positions, was lupus erythematosus. It is well known that lupus erythematosus may affect any part of the body, and one well-recognized type has a generalized distribution, the lesions lasting for many years or indefinitely. Recent developments in the face and

[1] *Trans. Clin. Soc. Lond.*, 1900, xxxiii, p. 235.

other parts in this patient's case corroborated the diagnosis of lupus erythematosus. During the process of involution lupus erythematosus produces a fine atrophic scar, and it is only too well known that carcinoma of the skin is apt to develop on such situations. Many cases are now on record of carcinoma developing on the scar of lupus erythematosus. It may be said with a good deal of truth that the more such a scar is irritated by attempts at treatment, the more likely is carcinoma to develop. In the present case he thought that a well-considered attempt should be made to remove a condition likely to give much offence to the patient and those in contact with her, and to avoid the consequences of the absorption of septic material.

## Case of Trophic Ulceration over a large Formation of Scar Tissue.

By EDRED M. CORNER, M.C.

THE patient broke his patella for the first time twenty-four years ago, subsequently breaking it again twice. It was wired in 1896, but suppurated, leading to removal of the patella, incision and irrigation. Bony ankylosis between the femur and tibia resulted. Without any ascertainable cause the scar began to ulcerate in its centre, and is slow to respond to treatment. The ulcer has been present for nine months.

## Case of Osteitis Deformans.

By EDRED M. CORNER, M.C.

THIS case illustrates the influence of previous fractures of the patella *before* the onset of osteitis deformans. The patellæ (both sides) are enormously enlarged. He is a man aged 38 in December, 1910. The left patella was broken and wired fourteen years ago. The right patella was broken seven years ago and wired. The present trouble (the osteitis) started "months ago," but was not sufficiently bad to make the man take heed of it until six to eight months ago. The osteitis has caused great enlargement of the previously fractured patellæ.

# The Treatment of Acute Suppression of Urine by Incision and Drainage of the Kidneys.

By WILFRED HARRIS, M.D., & W. H. CLAYTON-GREENE, F.R.C.S.

PART I (BY DR. HARRIS).

THE operation of nephrostomy or incision and drainage of a kidney for calculous anuria is well known, and it is not this class of cases of suppression that we propose to discuss to-night. It is more particularly to those cases of acute congestion of one or both kidneys of toxic or infective origin with subsequent suppression of urine and to their treatment by incision and drainage of the kidney, that we wish to draw attention. Five such cases have been operated upon by one of us (W. H. Clayton-Greene) for acute suppression, with three complete recoveries and two deaths, though in the two fatal cases the death was in no way connected with the kidneys, the renal functions having been fully established again after the operation. In one of these death was caused by secondary hæmorrhage from the renal artery (Case I), whereas in Case V death was caused by exhaustion due to intense colitis in a case of corrosive sublimate poisoning.

An important point on which we wish to insist is that acute congestion of only one kidney may cause total suppression by reflex inhibition of the function of the other normal kidney. This is apparently brought about reflexly, owing to the pressure within the pelvis of the congested kidney upon the branches of the renal plexus. This has been shown not only by clinical cases of unilateral plugging of one ureter by calculus, but also by experimental work. Goetzel, working under Israel's instructions, found that if the pressure in one renal pelvis is raised, there is produced a gradual diminution in the amount of the secretion from the opposite kidney until complete anuria is established. That such renal obstruction is not necessarily destructive of the secreting epithelium, even after many days' total anuria, is shown by numerous published cases, such as that of Dukes [2], in which a patient suffering from total suppression due to a calculus plugging one ureter, with complete anuria for nine days, recovered perfectly after nephrostomy, and later removal of the stone. Indeed, Eustace [3], of Quetta, records a case in which total suppression of urine due to the pressure of a

malignant cystic ovary lasted for twenty-eight days, and yet the secretion of the kidney became re-established to some extent after the cyst had been tapped.

Non-obstructive suppression of urine may be divided into the following four groups:—

(*a*) *Toxic*, due to drugs such as corrosive sublimate, turpentine, carbolic acid, lead, oxalic acid.

(*b*) *Infective*, acute nephritis, of bacterial origin; autotoxæmia.

(*c*) *Reflex*, from operations on the abdomen or genito-urinary region.

(*d*) *Hysterical*—? due to ureteric spasm.

Edebohl's operation of decapsulation for the acute parenchymatous nephritis of eclampsia has been done on many occasions with good results. This operation is, however, more difficult and perhaps less rational than nephrostomy, or incision into the pelvis of the kidney, for cases of toxic and infective nephritis with suppression of urine. The organ is here intensely congested and swollen, an acute renal glaucoma as it has been called, the pelvis containing a small quantity of urine, perhaps due to associated ureteric spasm, in spite of the empty bladder. Decapsulation may relieve tension, but is less likely to relieve the œdema of the kidney and the intrapelvic tension than is incision of the organ. Schmidt has performed decapsulation and also nephrostomy for acute suppression in post-scarlatinal nephritis, followed by recovery. Reginald Harrison also had operated in the same class of case.[1] Carlier [1] also has performed nephrostomy with drainage of the kidney in a man aged 60, after four days of complete anuria, without any obstruction from stone. Jaffrey[2] also has performed nephrostomy for suppression from acute nephritis, with good results. In the reflex cases of anuria also nephrostomy is probably the best line of treatment after medical treatment has been fully tried for forty-eight hours. Many of these cases, however, die before this time has elapsed, especially when chronic prostatic disease or stricture is present. For hysterical anuria catheterization of the ureters or chloroform narcosis may be tried.

In the following case of acute suppression due to corrosive sublimate poisoning we employed bilateral nephrostomy with the best possible results upon the restoration of the secreting functions of the kidneys:—

I. H., a girl, aged 18, on March 24 last swallowed about 26 gr. of solid corrosive sublimate. She vomited about twenty minutes later, severe abdominal

[1] Discussion on "Renal Tension and its Treatment by Surgical Means," held at the Annual Meeting of the British Medical Association in 1901, vide *Brit. Med. Journ.*, 1901, ii, p. 1125.

[2] *Lancet*, 1900, i, p. 612.

pain having set in, soon followed by bloody diarrhœa. Thirty-six hours later total suppression of urine suddenly set in, for which cupping of the loins, diuretics, hot pack, and injection of pilocarpine were tried without result. She was brought at once to St. Mary's Hospital, and admitted under the care of one of us (Wilfred Harris). On the third day of the anuria the right kidney was incised through an incision in the loin, and a drainage tube inserted into the pelvis of the kidney. The effect on the secretion was practically immediate, about 4½ oz. of urine being passed naturally during the night, and urine being also found in the liquid stools. The urea percentage in the first specimen was only 0·5 per cent. The next day only 2½ oz. of urine were passed, and therefore on the following day, the fifth after the onset of the anuria, we decided to incise the left kidney also, which was done, drainage of the pelvis of the kidney being done as before. In each case the organ was found intensely congested and bled very freely, but the œdema both of the kidney and of the perinephric tissues was much greater on the left side, that is to say, at the second operation. During the next twenty-four hours 12 oz. of urine were passed, and 28 oz. on the following day, the urea percentage rising to 1·8 per cent. From 30 oz. to 40 oz. of urine were henceforth passed daily until two days before her death on the sixteenth day on April 9, fifteen days after the onset of the anuria, and twelve days after the nephrostomy of the right kidney.

At the autopsy the kidneys were pale, and on microscopical section Dr. Spilsbury reported that there were no traces of nephritis, but there were evidences of calcification in some of the tubules, a result of the mercury poisoning. Although the function of the kidneys was thus completely re-established as the result of the double nephrostomy, the colitis due to the excretion of the mercury by the large intestine was so severe and intractable that her strength became exhausted.

Of our five cases of anuria of non-obstructive origin treated by nephrostomy and drainage of the kidney, three recovered and two have died, though neither of these two deaths was the result of the anuria, one being due to secondary hæmorrhage and the other to ulcerative colitis. As a result of our cases, we would recommend strongly that nephrostomy of one kidney should be performed, and perhaps of the other later, in all cases of toxic or infective nephritis with complete anuria lasting forty-eight hours. If the case be left longer, the kidney may be damaged and the operation is then too late. Moreover, the results of such incisions into the pelvis of the kidney prove the operation to be harmless and entirely beneficial.

PART II (BY MR. CLAYTON-GREENE).

I have little to add to what Dr. Harris has already said, except to give details of five cases of anuria upon which I have operated, all of which recovered from the anuric state—three permanently, two dying from other complications.

*Case I.*—The first case is that of a chauffeur, aged 32, who was admitted into the French Hospital in July, 1905. He had been suffering for a week from severe pain in the right side with vomiting, the pain radiating down to the testicle. The right side of the abdomen was so extremely rigid that neither my colleague, Mr. Owen, nor I could detect any definite tumour. There was some pyrexia at night, the temperature varying between 101° F. and 102° F. There was nothing that threw any further light on the condition to be found on examining the urethra or urine, for repeated investigation of the latter showed merely a few pus cells on one occasion only. On Monday, July 24, he ceased passing urine. The house surgeon passed a catheter, but drew none off—he thought a stone had come down from the kidney and was now blocking the urethra. I saw the patient the same night at 11 o'clock, and under anæsthesia passed a catheter into the bladder, and found to my surprise that it was empty. I had, in fact, to deal with a case of suppression of urine, and not, as I had thought, of retention. On examining the renal regions I found a large mass on the right side, which had hitherto been masked by the rigidity. There had been anuria now for nearly twenty-four hours. I cut down through the loin, and came upon a large distended kidney embedded in a mass of inflamed and indurated perirenal fat. This perinephritis has been a feature in most of the cases upon which I have operated. I made an incision through the convex border of the kidney into its pelvis. I could feel no stone, but the incision liberated about 10 oz. of stinking purulent urine. The renal tissue was friable and rotten, and the whole organ appeared to be in such a state of disorganization and infection that, had the anuria not been present, I should have considered the advisability of removing it. I did not perform this step, but contented myself with draining the kidney. On the next day he was free from pain, and passing urine freely *per urethram*. The amount increased, and on the third day measured 8 oz. The temperature fell to normal, and we thought that all danger was over. The discharge from the wound showed a pure coli infection. The urine was normal. All went well for a few days, and then he had recurrent hæmorrhage from the wound, so severe on August 9 and 13 that it was clear we had to deal with secondary hæmorrhage. The lumbar wound had healed by first intention, except where the tubes had been inserted. It was now imperative to remove the kidney, and this was done through an abdominal incision. But the renal pedicle was necrotic, and it was only with great difficulty, and after furious hæmorrhage, that the vessel was secured. The destructive process from the kidney had spread to the artery, thus producing secondary hæmorrhage. He never rallied from the operation.

The autopsy showed that the left kidney and bladder were absolutely healthy; there was no sign of disease in the opposite organ, but the kidney which had been removed was full of small abscesses, and gangrenous in parts. This case may be taken as a proof that unilateral affections of the kidney may produce suppression of urine by reflex action on the organ of the opposite side, such an organ being (as it was in this case) entirely healthy. The rapid recovery from the anuria in this and in another of my cases points to the affection being unilateral alone. If both kidneys are affected, or if the only functioning kidney is attacked, the recovery is much slower.

*Case II.*—The second case is that of a man aged 40, who was admitted on March 2, 1908, suffering from a perforated gastric ulcer. Operation was performed within seven hours of the onset of perforation; a chronic ulcer near the pylorus was closed, the peritoneum was mopped out and drained. The patient did well until March 10, when suppression of urine supervened. This persisted for forty-eight hours, in spite of hot packs, cupping, pilocarpine, saline infusions, &c. This case had also been under the care of Dr. Harris, and as we had both heard of a successful issue of incision of the kidney in Mr. Jaffrey's hands, and as my experience of the previous case had shown me that such renal incision might be followed by benefit, I incised the right kidney (under anæsthesia), and inserted a tube through the cortex into the pelvis. This operation was followed by immediate relief; urine passed freely through the drainage tube, and during the night following the operation the patient passed 32 oz. *per urethram*, a point again suggestive of the lesion being unilateral. There was no further complication; his wound healed by first intention, and he was discharged, cured, on April 21.

In this case, as in the others, there was considerable œdema of the perirenal tissue when I made my incision into the loin; but what struck me most was the tension within the renal capsule. Previous to the onset of the suppression no urinary changes had been noticed; though the urgency of his original condition made it easy to overlook any slight alteration in the secretion. Although obviously a case with considerable peritoneal infection, the abdominal wounds made for the purpose of dealing with the perforated gastric ulcer healed by first intention. I think, however, there is little doubt that I was dealing with a case of unilateral hæmatogenous infection of the kidney, secondary to the peritoneal lesion—a condition, in other words, similar to that in the previous case.

*Case III.*—The third case is that of a boy, aged 13, who was admitted under me on October 2 suffering from a stone in the bladder. I removed the stone through a suprapubic incision. There was a very slight amount of cystitis, and I sewed up the bladder, draining the abdominal wound. There were no details to record, except that there was a little urinary leakage above the pubes; and

It may, of course, be urged that some or all of these cases might have recovered without operation; but previous experience of similar cases makes me doubtful of the likelihood of a successful issue if nothing had been done. I would therefore urge that in all cases of suppression of urine which have not yielded to ordinary remedies within forty-eight hours, an incision should be made into the kidney. Attack the side in which most pain is complained of, or which appears to be the more rigid. If there is nothing to guide one, take the right side, and wait. I do not advise the incision of both kidneys at the same sitting, unless there is a functionless organ on the side first attacked, since, as I have shown, unilateral incision has been followed by the re-establishment of urinary function. Two wounds obviously increase the patient's discomfort. If, however, incision of the kidney of one side meets with no success, at the end of forty-eight hours I should incise that of the opposite.

REFERENCES.

[1] CARLIER. *Echo méd. du Nord*, Lille, 1909, xiii, p. 591.
[2] DUKES. *Lancet*, 1904, ii, p. 174.
[3] EUSTACE. *Brit. Med. Journ.*, 1896, i, p. 147.

## DISCUSSION.

Dr. PARKES WEBER remarked that, as was well known, certain patients with acute suppression of urine lived a relatively long time with complete or almost complete anuria, and their symptoms resembled rather those described under the heading of obstruction (retention) than those described under suppression of urine; the typical uræmic symptoms due to suppression might remain absent. He suggested that at the end, whatever the primary cause of the anuria might be, such cases became really instances of obstruction of urine owing to extreme swelling of the renal parenchyma. In a paper on "Anuria with Necrosis of the Renal Convoluted Tubules"[1] he had observed: "I suppose that when for any reason the cloudy swelling and degeneration rapidly pass on to actual cell necrosis the convoluted tubules become mechanically blocked, and more or less complete anuria results." These considerations appeared to have some theoretical bearing on the subject of the possible relief of acute suppression of urine by incising the kidney.

Dr. POYNTON said it would be interesting to know whether, in acute Bright's disease with almost complete suppression, it would not be well to incise when the symptoms became severe, instead of waiting for forty-eight hours.

Dr. HARRIS, in reply, said that in cases of corrosive sublimate poisoning acute nephritis was a common complication, and the state of the kidneys at the operation warranted that view, although at the post-mortem examination those signs had disappeared. Schmidt had published a case of nephrostomy for suppression in scarlatinal nephritis, with a good result.

[1] *Lancet*, 1909, i, p. 601.

# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

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***VOLUME THE FOURTH***

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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1910-11

## DERMATOLOGICAL SECTION

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1911

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The Council think it right to state that the Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

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# Dermatological Section.

October 20, 1910.

Dr. T. Colcott Fox, President of the Section, in the Chair.

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## Atrophodermia Striata et Maculata with Phthisis and Lichen Scrofulosorum.

By H. G. Adamson, M.D.

The patient was a clergyman, aged 38. Six years ago he had developed pulmonary tuberculosis; for some years before this he had had an eruption on the trunk which had persisted unchanged until the present time. This the exhibitor diagnosed as lichen scrofulosorum. On the whole trunk and on the shoulders and buttocks was a very profuse eruption of pin-head-sized, reddish-brown follicular papules, grouped together into areas of the size of a split-pea to that of a shilling. Scattered among the smaller papules were a few dusky-red, split-pea-sized papules, some of which were crusted at their centre. These gave the impression of acne pustules rather than of a papulo-necrotic tuberculide. In addition to the eruption there were numerous atrophic striæ and macules, which the patient had also noticed for many years. The striæ were in the form of bluish bands of from 1 in. to 3 in. long and from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. in width. Many were in radiating lines from the axillæ, and in the lines of cleavage about the buttocks and groins, but some were without any regular direction. To the touch they gave the sensation of a loss of tissue, and the thinned and wrinkled skin could be pinched up between the tips of the fingers. Besides these linear striæ there were scattered all over the trunk split-pea-sized to threepenny-piece-sized fine atrophic scars, which could be clearly seen only in certain lights. It was noted that in many instances the atrophic macules correspond with a group of the follicular papules.

The exhibitor said that linear atrophy was known to occur in wasting diseases and in tuberculosis, among others, and the opinion had been expressed by Heuss, Thibierge, Wechselmann, Oppenheim, and others that macular atrophy might perhaps be connected with the toxins of tubercle, because most cases recorded had shown signs of tuberculosis. In this case those macules which corresponded with groups of papules of lichen scrofulosorum certainly occupied areas which had been under the influence of the toxins of tubercle.

## Photographs of a Case of Atrophia Maculosa Cutis.

By H. G. Adamson, M.D.

The patient was under the care of Dr. Herringham for nephritis, and was too ill to attend. Over the whole trunk, on the neck, on the arms to the elbows, and on the thighs were very numerous oval, finger-nail-sized, whitish to bluish atrophic macules. The macules were arranged in the direction of the lines of cleavage, so that they radiated from the axillæ and sloped downwards and forwards at the sides of the chest. They were sharply circumscribed areas of fine, wrinkled, easily pinched-up atrophic skin, which felt soft and silky, and gave the sensation of a hole in the skin. The openings of the follicles were larger and more conspicuous over the macules than in the surrounding skin. The patches showed nowhere any sign of erythema, infiltration, or pigmentation in or around them. Those on the lower part of the abdomen were curiously distended into dome-shaped elevations by the œdema which was present in that part. The patient had nephritis, but there was no history of syphilis nor of tuberculosis.

The case was of interest as a remarkable example of atrophia maculosa cutis. The exhibitor much regretted that the patient had been unable to attend.

Sections made by Mr. McDonagh were exhibited, and these showed: (1) A marked cell-infiltration immediately around the blood-vessels; (2) A total loss of elastic tissue in the lesions.

It had been long ago pointed out by Liveing that these atrophic macules were preceded by a stage of redness and "hypertrophy." Jadassohn had first demonstrated that histologically there was evidence of primary inflammatory action, with secondary atrophy, especially of the elastic tissue.

The exhibitor hoped later to publish these two cases more in detail.

## Syphilitic Keloid in a Man aged 47.

By G. W. DAWSON, F.R.C.S.I.

THE patient contracted syphilis seventeen years ago. The arms from the shoulders to the elbows became ulcerated twelve months ago, and two months after the present condition of keloid developed. The syphilitic scarring was very superficial, there being no contraction or difference to the feel of the skin, but there was extensive development of keloid in a characteristically irregular manner, particularly at the margins of the scar and the bends of the elbows, which could not be extended beyond a right angle. It was interesting to observe the rapid effect of mist. biniod. in reducing the keloid, enabling him to extend the arms to a much greater degree within a comparatively short time.

## Lichen Annularis in a Man aged 40.

By G. W. DAWSON, F.R.C.S.I.

THE eruption began last May, and when Mr. Dawson saw him in July it was limited to the scrotum. It consisted of numerous small, shiny, angular papules, with here and there the formation of rings the size of a sixpence, the margins of which were very thin. Shortly after first seeing him lesions were noticed in the mouth and a few papules about the ankles. The eruption was very itchy.

## Case of Multiple Facial Tumours.

By G. W. DAWSON, F.R.C.S.I.

THE patient, a man aged 49, who had a history of syphilis, noticed five years ago small tumours on the face. They were white in colour, the size of large shot, and hard to the touch. From the histological appearance they seemed to be small fibrous tumours embedded in the derma.

## Peculiar Affection of the Ankles in a Lad aged 18.

By G. W. DAWSON, F.R.C.S.I.

THE condition began twelve months ago, and gave rise to considerable pain on standing. There were a couple of transparent-looking

scars about the ankles, surrounded by pigmentation and a suspicion of telangiectasis. The exhibitor thought it resembled a similar case shown some time ago at the same Society.

Dr. GALLOWAY said that he recognized this affection as an example of a rare vascular lesion, a few examples of which had been shown during the last year. One or two cases had been under Dr. Galloway's observation, and he had drawn attention to these in the Clinical Section of the Society in February last,[1] when Dr. Wynter had shown a somewhat similar case. The striking features of the disease were, first, the distribution of the telangiectatic lesion, usually behind the internal or external malleoli, passing in band form up the leg. The skin was easily injured and not infrequently ulcerated, the ulcers produced being very slow to heal and leaving deeply pigmented scars, such as were seen in Dr. Dawson's case. In well-marked cases the persistent pain from which the patient suffered, referred to the injured skin, was a very important feature of the disease.

## Case of Summer Eruption.

By S. E. DORE, M.D.

(For Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S.Ed.)

THE patient was aged 55, and had lived for seventeen years in Cyprus, where he had been much exposed to the sun and where his present complaint developed, apparently as the result of the exposure. His face and hands present the condition known as sailor's skin; it was thickened, pigmented, and scaly, and in some of the patches covered by thick adherent scales, which, when removed, caused bleeding. The parts most severely affected were the nose, temporal regions, ears, and the sides of the neck. On the nose there was a patch of scarred or atrophied skin, which, together with the peculiar nature of the scales, suggested that the case was either closely allied to lupus erythematosus or was passing into this condition.

### DISCUSSION.

Dr. PRINGLE elicited from the patient that the eruption was at its worst during the summer months and died down somewhat in the cold season, but never entirely disappeared.

The PRESIDENT (Dr. Colcott Fox) said that he did not consider the eruption to be at all an uncommon one.

Dr. DORE replied that the patch on the nose was evidently very like lupus erythematosus, and it was doubtful if it could be distinguished from that condition.

[1] *Proceedings*, 1910, iii (Clin. Sect.), p. 106

## Three Cases illustrating Benefit derived from Ehrlich-Hata's "606."

By J. E. R. McDonagh, F.R.C.S.

### Case I.

A female, aged 49, acquired syphilis at the age of 19, for which she was treated on and off for two years; ten years ago a serpiginous syphilide arose on the left arm, lasted two years, and disappeared ultimately under treatment. No sooner had it disappeared than a similar lesion developed on the other arm, and slowly increased in size till the diameters of the lesion were 5 in. by 3 in. when she received the injection.

At the commencement of July she complained of weakness in the left shoulder and wrist, and her fingers felt numbed. On admission the patient could not raise her arm above her shoulder, could not lift up anything, and had a feeble grip. On July 30 an injection of 0·45 grm. was given. Next day there was considerable pain, and the temperature rose to 99·2° F. No albumin. On August 1 the temperature was 101° F. The same day the patient noticed that she was regaining power in her left arm, and the syphilide was also showing signs of fading. On August 2 the temperature returned to normal, and there was a slight trace of albumin in the urine, which lasted only for twenty-four hours. On August 8 the power in the left arm was almost as good as the right, and the skin lesion was scarcely perceptible; further, the patient said of her own accord that she had not felt so well for years, and that the "heaviness" over the heart and chest had completely gone. On August 25 Wassermann's reaction was negative.

For this case the exhibitor was indebted to Dr. Abraham and Mr. J. G. Pardoe. Albuminuria after the injection was not common, and when present was only slight and transient.

The exhibitor wished to draw attention to the cardiac distress, "heaviness," præcordial pain, and irregularity in the heart's beat, to the disappearance of which the patient called his attention after the injection. So frequent were these symptoms in late acquired syphilis, although infrequently complained of, that the exhibitor suggested their value in diagnosis. The Wassermann's reaction usually became negative between the third and fourth weeks after the injection.

### Case II.

A girl, aged 15, developed the usual signs of congenital syphilis soon after birth, the mother having acquired the disease two years

before. Later the child had double interstitial keratitis, which disappeared under treatment, to be followed by cutaneous gummata over the left thigh and leg, which had resisted prolonged oral administration of mercury. The gumma on the thigh was deep, circular, and about 2½ in. in diameter; on the anterior surface of the tibia were multiple sores, the base of some reaching as far as the periosteum and bone; there was a great deal of evil-smelling discharge, and it was almost impossible to keep the ulcers clean. The patient received 0·3 grm., and except for a little pain and a rise of temperature to 100° F., which lasted till the next day, she suffered no inconvenience. On the second day the ulcers already showed signs of healing, and within ten days they had completely healed, no other treatment having been added. The patient also said that she felt very much better. The Wassermann's reaction remained positive, irrespective of the cure "606" had brought about.

The persistence of a positive reaction in congenital syphilis, even although the case had been systematically treated, brought up the point as to whether a positive reaction was always indicative of active syphilis. Before the question could be answered definitely more experience with "606" in the congenital form must be acquired.

The exhibitor was indebted to Mr. R. C. Elmslie for the case.

### Case III.

A male, aged 28, contracted syphilis in August, 1908, and commenced treatment with pills in September, by which time the secondaries had fully developed. The patient continued with his treatment until July of this year, when he was admitted with ulceration of the nose, fissuring of the tongue, elephantiasis and ulceration of the lower lip, and gummatous ulcers on both shins. The patient received 0·45 grm., and two days later the nose was no longer red, the ulcers had begun to heal, and on the third day the lip had reached its normal size, and within fourteen days every ulcer had completely healed. The patient had keloids where syphilitic papulo-pustules had been, and even these showed some improvement after the injection. On September 13 the nose broke down again, so a second injection of 0·5 grm. was given, but although the second dose was larger, it did not exert such a marvellous action as the first had done; the ulcer healed after fourteen days, but the redness never quite disappeared, and it looked not unlike breaking down again.

There was no doubt in the exhibitor's mind that an immunity had been produced, which prevented the full action of any subsequent

injection; such being the case, it was most important to give a big dose the first time. The exhibitor had had the same experience with another case, in which an ulcer on the nose refused to heal under a larger second injection. The exhibitor had had no mishaps, and of 12,000 cases which Ehrlich had to hand, not one had developed optic neuritis.

Captain HARRISON, R.A.M.C., remarked that in view of the local reaction and the consequent pain and tenderness on pressure, it was important to choose a site which would be least likely to be pressed upon. A somewhat extended experience with the injection of anti-typhoid vaccine, which was also succeeded by a local reaction, had led him to suggest the injection of "606" into the subcutaneous tissues overlying the pectoral muscles, and this site had been adopted in the latter cases which had been treated with "Hata" at the Military Hospital, Rochester Row. The result has been that, as the site of the injection had not been pressed upon when the patient was lying in bed, there had been considerably less discomfort when the local reaction occurred than in the cases where the injection had been made into the back. He would like to ask Mr. McDonagh whether he had remarked that in cases where the manifestations of the disease were particularly localized to one region, the injection had been followed in about twenty-four hours by a reaction at the place where the spirochætes had been more particularly active. The question was suggested to him by two cases which he had seen at the Rochester Row Hospital: in the first, a case of gummatous iritis, there had been severe pain in the eye, attended by considerable injection of the conjunctiva, twenty-four hours after the injection; in the second, a case of cerebral syphilis, the injection had been followed by very severe headache. In both of the cases the pain had gone in a few hours and both had ultimately done very well, and he suggested that possibly the temporary increased severity of the symptoms might indicate an increased activity of the parasites immediately preceding their death.

## Complete Albinism in a Girl aged 6, with Total Absence of Pigment in the Skin, Hair, Choroid and Iris.

By J. M. H. MACLEOD, M.D.

THE hair of the scalp was long, soft, and silky, pure white in most places, with here and there a whitish-yellow tinge. The glabrous skin was white or slightly pinkish, and the pupils of the eyes were deep pink, and the iris a lighter greyish-pink from the absence of pigment and the colour of the blood-vessels shining through. There was marked photophobia and nystagmus. The child was otherwise healthy, and did not appear to be backward mentally. There was no history of a similar

affection in the family, the father and mother being alive and healthy. The patient was the only child, and at birth had long white hair extending down as far as her eyes.

## Case of Maculo-anæsthetic Leprosy.

By J. M. H. MacLeod, M.D.

This case, which was demonstrated at the meeting of the Section on July 21,[1] was now again brought before the Section to show the increased thickening of the great auricular and transverse cervical nerves.

## Case of Multiple Idiopathic Pigmentary Sarcoma (so-called).

By J. H. Sequeira, M.D.

The patient, a Polish Jew, aged 78, had lived for the past twenty-five years in the east end of London. He had never suffered from gout and there was no history of syphilis. His general health had always been good, but in 1908 he noticed an eruption of "red spots" about the size of a shilling upon the lower part of the right leg and on the dorsum of the foot. About a year later similar spots appeared on the lower part of the left leg. Seven months ago the spots began to increase in number with great rapidity, and soft swellings formed, which spread all over the dorsum of the right foot and to a less extent on the left.

On inspection the right leg appeared to be distinctly swollen, and in the lower half there was a purplish swelling of the integument upon which were a number of rounded purplish elevations standing upon flattish nodules about the size of a sixpenny-piece. The epidermis between the purplish elevations was thickened and in parts horny. Palpation showed that the limb was slightly œdematous, and that the hemispherical swellings contained fluid, which could be expelled by slight pressure with the finger. The left leg was affected less than the right, the nodules and blebs being more scattered. There was, however, the same condition of œdematous swelling of the limb. The root of each toe-nail was covered with a thick, horny crust of a yellowish-brown colour, and the distal extremities of the ungual plates were elevated by brownish masses of hard consistence. The skin of the soles was of a reddish-pink colour, but there were no nodules or blebs upon it. There

[1] *Proceedings*, 1910, iii (Derm. Sect.), p. 111.

were also purplish-red macules upon the right forearm and wrist, and on the first and second fingers of the right hand, but there were no nodules or blebs. Fluid removed from the blebs proved to be blood. There were no abnormal cells, and the contents were sterile. There was no evidence of visceral disease, and the blood presented normal characters.

Microscopical appearances: A recent nodule was excised and submitted to Dr. Turnbull for examination. Under a low power a portion of the dermis appeared to be abnormally cellular. The papillæ were not well marked, or were absent in this area. There was some horn upon the surface on the epidermis, and the horny layers were split in places by groups of red corpuscles or the granular débris apparently derived therefrom. This infiltration with blood was not confined to the cellular area, and was not more marked in that part. There was some brown-yellow pigment in the basal layer of Malpighi, and this pigment was more abundant over the cellular area. Only two or three pigment cells were found in the papillary zone of the dermis. There was no visible destruction of the collagen fibres. Below the papillary zone, however, the fibres were separated by small cellular groups. These groups lay in the main parallel to the surface. Many of the cells were cuboidal or triangular, and others were spindle-shaped, with long processes. With Unna-Pappenheim's stain very few plasma cells were noticed among the other cellular elements, but at the border of the infiltrated area there were several perivascular groups of plasma cells. There was also much plasma-cell infiltration around a sweat-duct at the margin of the nodule. The infiltration itself was evidently perivascular. There were many, often engorged, capillaries in the cellular area, but no obvious new formation of capillaries. There was no obvious destruction of elastic tissue. Throughout the cellular area and the deeper layers of the dermis there was much intra- and extra-cellular pigment in the form of small granules.

Dr. Turnbull concluded that the process was inflammatory and not sarcomatous. In this he agreed with the opinion of Dr. Bulloch on a similar case shown by the exhibitor in 1901.[1] In commenting upon the case Dr. Sequeira remarked upon the peculiar bleb formation, and referred to the after-history of the case under the care of Dr. Pringle and Sir Stephen Mackenzie. This patient had one leg amputated, but the disease ultimately cleared up with atrophy. The patient lived for quite twenty-five years after he was first shown in this country, his death taking place last year in the London Hospital from cardiac failure following bronchitis and emphysema.

[1] *Brit. Journ. Derm.*, 1901, xiii, p. 201.

DISCUSSION.

Dr. PRINGLE observed that Sir Jonathan Hutchinson had laid much stress upon the occurrence of gout in association with this condition, and said it would be interesting to know whether there were any gouty elements in the present case. He also asked as to whether the patient developed the disease in this country. In the case of his own to which Dr. Sequeira had alluded in his notes, the specially interesting point was that idiopathic atrophy occurred, and all signs of the so-called "sarcoma" disappeared many years before the patient died, leaving the affected parts completely useless from muscular atrophy.

Dr. SEQUEIRA replied that there were no elements of gout in this case, but in a case of a similar nature that he brought before the Dermatological Society in 1901 the patient had many attacks of gout, and the same observation applied to the patient with this condition whom he showed before the Section last year. These patients developed the condition in this country.

## Case of Inherited Syphilis treated by Ehrlich-Hata's "606."

By J. H. SEQUEIRA, M.D.

THE patient, a boy, aged 15, had five brothers and one sister in good health. His mother and father were alive and well. There was no history of miscarriages. He is stated to have suffered from typhoid fever when aged 2, and since that time had been troubled with his eyes. The right eye became gradually useless. He also suffered from deafness. During the past two years the condition of the eyes and ears has been getting worse. Six years ago a "row of pimples" appeared on the upper lip and gradually spread until the greater part of the left cheek, the nose, and a portion of the adjacent part of the right cheek were involved. The "pimples" ulcerated, and when he was admitted to the ward there was a very large mass of dirty crust covering the left cheek, nose, and upper lip. The mucous membrane of the lip was everted and ulcerated. On the removal of the crusts by fomentations a large ulcerated area was exposed. Its margin was raised and nodular. He was examined in the ophthalmic department, and was found to have interstitial keratitis and retino-choroiditis of both eyes and phlyctenular ulceration of the left. Mr. Hunter Tod reported that there was chronic middle-ear suppuration with granulations, and that the internal ears were also affected. The Wassermann reaction was strongly positive.

On October 10, 0·1 grm. Ehrlich-Hata's "606" was injected into the right buttock, and on October 12 0·2 grm. was injected into the right

infrascapular region. There was some slight pain, but the lad slept well without any hypnotic. In four days the ulceration had almost entirely disappeared, and when the lad was shown at the meeting the surfaces were quite clean and healed.

An interesting point was that the patient volunteered the statement that he was able to see better than he had done, but careful examination with the test-types did not demonstrate any definite improvement.

Dr. Sequeira referred to other cases which he had under observation. In one of them, injected in July—a case of extra-genital chancre—there had been a negative Wassermann reaction for over three months. He also mentioned two infants suffering from inherited syphilis with extensive eruptions, one being treated directly by injection and the other through the mother, who had received 0·6 grm. of "606." In both infants rapid improvement was noticed. The case suckled by the mother who had been injected had since appeared to progress more rapidly then that treated directly. It should, however, be noted that the latter only had 0·02 grm. injected.

The full details of the cases treated at the London Hospital will be published later by Dr. Bulloch, Dr. Fildes, and Dr. McIntosh, who had been carrying out the treatment with "606," kindly supplied by Professor Ehrlich.

## Atrophic Lichen Planus with Cornu Cutaneum.

By A. WHITFIELD, M.D.

THE patient was a woman, aged 63, who gave a history that twenty-four years ago she had had an eruption break out over the limbs and trunk. The eruption had disappeared over the upper limbs and trunk, but had persisted on the legs. Three years ago she had fallen down and cut the left knee, and since then a horn had developed. This she had removed by poulticing on one occasion, but it had grown again. A few days before coming to the hospital she had knocked it and had broken off a piece about ¾ in. long, and this piece she had brought with her to the hospital.

The condition on exhibition was as follows: On the left knee over the patellar tendon and the patella itself there was a fine, papery scar, and in the centre of this was a bifid horn. The larger half was over 1 in. long and turned sharply downwards after growing out of the skin, so that it lay for its whole length along the skin, and might at a

casual observation be mistaken for a long crust. Closer examination showed, however, that it was really a long horn about ½ in. in transverse section, and a piece of paper could be easily slipped up between the lower end of the horn and the skin. The smaller half had been broken off short and projected about ¼ in. The inner edge of scar was bounded by a purplish border about ⅛ in. wide, and this was hard and obviously infiltrated, so that the eruption strongly resembled a late syphilide, as which, indeed, it had already been diagnosed. Beyond the inner edge of the scar there were a few infiltrated papules or nodules, also strongly suggestive of syphilis. Higher up the limb, on the outer side above the knee, there were several large patches of hypertrophic lichen planus. The outer side of the leg above the malleolus was the seat of an indeterminate septic and infiltrated eruption. On the right leg below the knee the whole of the anterior and outer surfaces were occupied by a sheet of the most exquisite atrophying lichen. The skin here was converted into a network, of which the "strings" were formed by bluish-red lines of lichen planus, while the "holes" of the net were composed of fine, pearly atrophy. There was no eruption on any other part of the skin or on the oral mucous membrane. For the sake of completeness a Wassermann's reaction had been carried out by Dr. Emery, and had given, of course, a negative result.

DISCUSSION.

Dr. KENNETH WILLS (Bristol) suggested that as the X-rays had a beneficial action upon some cases of the lichen group, and that the same had been observed with cutaneous horns, it would not be illogical to hope that this agency might succeed in relieving this affection without recourse to surgical measures.

Dr. WHITFIELD replied that he had intended to remove the horn by excision, but would adopt Dr. Wills's suggestion and try the effect of exposure to the X-rays.

## Gonorrhœal Keratosis of Hands and Feet.

By A. WINKELRIED WILLIAMS, M.B.

THE patient, a man aged 21, previously suffered from hyperidrosis pedis in summer time, and last year with considerable keratosis of the soles, which peeled off in the winter. He contracted gonorrhœa nearly two months before the present eruption was noticed. The urethritis was followed a month later by gonorrhœal arthritis of the knee and

ankle. The eruption came first on the feet, and a few days later the hands were affected. It consisted of diffuse plate-like keratosis of the soles, with the addition of numerous dome-like elevations of yellow, translucent, intensely hard, horny masses and also a number of cones of similar transparent yellow horny matter. These practically covered the front and sides of the toes and the sides of the feet. They looked at first sight like bullæ beginning to dry up. They could be peeled off with comparative ease, leaving a red, moist surface. The under-surface of the peeled mass was lined with a greyish-white, somewhat slimy, putty-like material. Tubes of agar, nasgar, and serum inoculated with the slimy material remained sterile after a week's incubation. Films of the material showed no gonococci or other organisms. The eruption on the hands was less extensive than on the toes, and consisted of a few transparent yellow cones and a single transparent horny dome.

## Sclerodermia with Obstinate Callous Ulcers on the Legs greatly improving under Mercurial Inunction.

By A. WINKELRIED WILLIAMS, M.B.

THE patient was formerly a professional athlete, but had not been exposed to cold in running shorts for fifteen years. There was no history or evidence of syphilis, nor of erysipelas or any other illness. The onset of the disease was attended with severe pain in spasms, sometimes lasting for hours, in the joints and muscles. The skin affection began with induration without œdema. On the lower extremities it involved the feet and legs and the lower half of the thighs, and was sharply limited above by a telangiectatic area. On the upper extremities it extended from the finger-tips half-way up the upper arm, and the upper limit was similarly defined.

The patient attended the skin department of the Sussex County Hospital in November, 1909. As he had previously undergone practically all the generally recognized treatments excepting electrolysis and mercurial inunction (Chirone's method) without relief, he was put on mild mercurial inunctions. He had to return to London in a month, and was apparently slightly better. On July 16, 1910, he managed to return to Brighton in order to continue the treatment, which he felt had considerably relieved him, and was able to remain until October 4, when he had to return to London. During this time he had mild

mercurial inunctions, not pressed to produce any stomatitis, and he had vastly improved. Unfortunately it was not possible in Brighton to get a Wassermann test done when he first came. Whether the remarkable improvement was the direct result of the mercurial treatment was uncertain, but it was certainly coincident with it, and, in view of the recent American investigation of the Wassermann reaction in sclerodermia, was decidedly significant.

## Epithelioma, involving the whole of the Lower Lip and the entire Skin of the Chin, showing a close Clinical Resemblance to Actinomycosis.

By A. Winkelried Williams, M.B.

The patient, a cowkeeper, stated that two years ago a small spot appeared on the lower lip. It got gradually larger; he had never had any pain, but much pruritus. He had not lost weight and was in good general health. The entire skin of the chin was much swollen, and of a purplish-blue colour; it was not indurated, but thrown into corrugations, with many sinuses exuding a highly fœtid sanious pus. Probes could easily be passed from sinus to sinus along the corrugations. There was some ulceration of the lip, but no thickening of the jaw-bone, and four weeks ago, when he was first seen, there was practically no enlargement of the cervical or submaxillary glands.

The surgical opinion expressed a month ago was that the disease was malignant and inoperable. He was consequently first put upon large doses of iodide of potassium, beginning with 30 gr. daily, increased in a week to 90 gr. daily, and the pus and scrapings from the sinuses were repeatedly examined by Dr. Galt and Dr. Williams for the ray-fungus, but none was found. A biopsy was then made, and the diagnosis of typical epithelioma was made. The patient was now under X-ray treatment. The case was shown on account of the curious resemblance to actinomycosis.

# Dermatological Section.

November 17, 1910.

Dr. T. COLCOTT FOX, President of the Section, in the Chair.

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## Pemphigus Foliaceus of Sixteen Years' Duration.

By H. G. ADAMSON, M.D.

THE patient, a Polish woman, aged 39, was now in the Whitechapel Infirmary under the care of Dr. Woodyatt, who had kindly allowed the exhibitor to show her at this meeting. She was well nourished and apparently in excellent health, except for the state of her skin. The skin of the whole trunk was redder than normal, and there were present on the arms and legs, and to a less extent on the trunk, areas which were the seat of excoriated, oozing patches, intermixed with sixpenny-piece to florin-sized, wrinkled, papery scales or crusts. The scales or crusts were evidently made up of the separated horny layers of the epidermis, together with dried secretion, which were the remains of bullæ, and here and there were flaccid bullæ of recent formation. The skin of the trunk and limbs, where it was not the seat of actual lesions, though apparently sound, was really profoundly altered, for pressure with the finger upon any part caused the superficial layers of the epidermis to slide off the deeper layers, leaving a red, raw surface. This, the well-known "Nikolsky's sign," though occurring also in some cases of pemphigus vulgaris, was particularly well marked, as in this instance, in cases of pemphigus foliaceus. In the patient exhibited, if the margin of a blister or a tag of the artificially separated epidermis were pulled up with forceps, the upper layer of the epidermis could be literally stripped off from the deeper layers.

The skin of the face presented what had been described as a tessellated appearance—that is to say, the whole of the superficial layers of

the epidermis was broken up into irregularly polygonal patches by cracks extending through the horny layers and crusted with dry serum. The hair was rather thin and coarse. The nails were normal. The mucous membranes were unaffected. There were no subjective sensations of itching, smarting, or pain.

At the present time the patient was having no other treatment than a daily non-medicated bath, followed by the application of a simple ointment. Dr. Woodyatt had written that the patient had been in the infirmary for a very long time, that she was at present comparatively well, the whole body being at times almost completely covered with scales and crusts.

A remarkable feature about the case was its long duration. The patient had been shown at a meeting of the Dermatological Society of London by Dr. Pringle in 1897 as a case of pemphigus foliaceus. Dr. Pringle's report, published in the *British Journal of Dermatology*,[1] would be quoted as showing how little the patient's condition had altered during the past thirteen years, and also because it indicated the difficulty there might be in diagnosing an extensive eruption of pemphigus foliaceus from one of general exfoliative dermatitis. Dr. Pringle's note (in 1897) ran as follows: "The disease began in the early part of 1893 as patches, first on the hands, then on the feet, and rapidly a universal dermatitis was established, since which time she has been in very numerous hospitals and infirmaries throughout London. She was under the exhibitor's care for a period of six weeks in the autumn of 1894. She then manifested all the typical phenomena of a general exfoliative dermatitis of the type originally described by Erasmus Wilson. The dermatitis was universal; the scaling was extremely abundant, being branny over the face and limbs but in large sheets over the trunk. The subjacent skin was vividly red and only oozed slightly in the large flexures; the scalp was covered with a thick seborrhœic cap, and almost completely devoid of hair; the eyebrows were practically destroyed; the nails were thickened and grew with great rapidity. The subjective skin sensations complained of were smarting and pain—not itching—and a sense of cold, with great sensitiveness to change of temperature in either direction. The mucous membranes were unaffected, and she was in good general health, with an enormous appetite and apparently perfect digestion. Her bowels acted regularly; there was occasional slight albuminuria. Treatment by local and general

[1] *Brit. Journ. Derm.*, 1897, ix, p. 322.

measures—including, of course, thyroid feeding—did not influence the disease. She was ultimately discharged *in statu quo*, partly on account of her intractability and incorrigibly filthy habits. The most recent development of the case has been the appearance of flaccid bullæ, especially numerous upon the backs of the hands and forearms, and these appeared to the exhibitor to imprint a more definite nature upon the case than his original diagnosis implied. Several of these blebs were present when the patient was exhibited, otherwise she showed wonderfully little change for the worse since 1894."

## DISCUSSION.

The PRESIDENT (Dr. Colcott Fox) said he had recently had to study a good deal of literature concerning pemphigus foliaceus, and he found quite a number of cases so described which were really dermatitis herpetiformis, characterized by vesicles coming out in clusters and rings; he had a remarkable case which he showed at the International Congress in London.[1] The patient was a girl who had been in two great London hospitals, under highly competent physicians, who had both diagnosed pityriasis rubra; there was an absolutely universal, dry, desquamating surface. When she came under his care the disease process was less intense and the outbursts spaced, so that he was enabled to see over and over again the formation of excentrically spreading rings of vesicles.

Dr. PRINGLE said he remembered the patient very well when she was under his care at the Middlesex Hospital in 1897. It was amazing to him to see that she was in such good health, and to hear that apparently she had recovered from time to time. She had had a universal severe dermatitis with typical "pie-crust," flaky exfoliation, and characteristic flaccid blebs appeared from time to time. The progress of the case was in marked contrast to that usual in such conditions, and he thought it reflected the greatest credit on the authorities of the infirmary of which she had been so long an inmate. Dr. Pringle was quite unable to see any resemblance in the disease to dermatitis herpetiformis, which was apparently suggested by some Fellows present as an alternative diagnosis.

Dr. GRAHAM LITTLE had had a rather similar experience of long survival of a patient who had shown the symptoms of pemphigus foliaceus. Dr. Pringle would probably recall the case, as he had been good enough to visit the patient in St. Mary's Hospital, and had confirmed the diagnosis. This patient was now quite recovered, and it was about eight years since she had first come under observation. The eruption had recurred very frequently for several years; latterly the flaccid bullæ, which had been the feature of the earlier attacks, no longer appeared, a general scarlatiniform desquamation taking their place, and this also had finally ceased.

[1] *Lancet*, 1896, ii, p. 471.

## Acne Scrofulosorum in a Patient who had Congenital Syphilis.

By H. G. ADAMSON, M.D.

THE patient was a girl, aged 16, who presented radiating scars at the corners of the mouth, interstitial keratitis of the right cornea, and peg-shaped upper lateral incisors, and whose blood had given a positive reaction to the Wassermann test. She had also had recently a typical eruption of acne scrofulosorum (papulo-necrotic tuberculide), of which the scars remained, on the hands, forearms, and legs.

## Case of Hyperkeratosis of the Palms and Soles.

By H. G. ADAMSON, M.D.

THE patient was a woman, aged 39, who had had this condition of the palms and soles for ten months. The whole of each palm and the whole of each sole, except the concave arch on the inner side, were involved. The horny epidermis was thickened to the extent of 5 mm. to 6 mm. ($\frac{1}{8}$ in.), and everywhere broken up into small disks by fissures through its thickness. Clinically, there appeared to be no underlying inflammatory condition. There was no eruption elsewhere. The condition was obviously not a parakeratosis, the result of psoriasis, eczema, or syphilis, but was a pure hyperkeratosis. It resembled some cases of congenital hyperkeratosis. The exhibitor asked whether members were familiar with such cases as an acquired condition. He thought that X-ray applications in pastille doses would probably effect a cure.

### DISCUSSION.

Dr. SEQUEIRA had treated three such cases with X-rays, with apparent cure, but followed by relapses of the condition.

Dr. PRINGLE said he had seen a good number of such cases. They usually were sent to the X-ray department, where they received a pastille dose and got temporarily better. Then they had a recurrence in three or four months and required further similar treatment. The patients were nearly always women about the same age as that exhibited. He used to think they were all associated with hyperidrosis, but had for some time past modified his views as regards that point.

Dr. MACLEOD said he had a case of keratosis of the palms somewhat similar in appearance to that exhibited by Dr. Adamson in a woman of middle age. In her case, however, it was preceded by hyperidrosis. Treatment by full doses of the X-rays served to keep it under, but had not permanently cured it.

## Case of Lichen Scrofulosorum.

By HALDIN DAVIS, M.B.

THE patient was a girl, aged 13, who had been attending Paddington Green Children's Hospital for about six months. She came up to consult the exhibitor for an eruption consisting of small, reddish, lichenoid papules, some of them surmounted by scales; they were grouped in clusters, and showed also in some places a circinate arrangement. The eruption was confined to the upper parts of the thighs ("bathing-drawer distribution"), and a few papules were also found upon the extensor aspect of the forearms. She complained of no subjective symptoms whatever. Nor when she first came under observation did she exhibit any other sign of disease in any part of her person. It should, however, be mentioned that she had leucodermia about the neck. The contrast of pigmentation between the pale areas and the surrounding pigmented skin was not very marked, but of the existence of leucodermia there was no doubt. After being under observation for about a month she suffered from an affection of the eyes, for which she attended at an ophthalmic hospital, and after some little time it quieted down.

The diagnosis lay between lichen scrofulosorum and a small miliary syphilide. With the latter assumption the eye affection, which might have been an interstitial keratitis, and the leucodermia of the neck, which might have passed for a specific leucodermia, quite well accorded, but there was no history or trace of a primary lesion, and an examination of her blood for the Wassermann reaction gave a negative result. Anti-syphilitic treatment, therefore, was not tried. Recently she was an in-patient at the hospital, and the opportunity was taken to make a biopsy, and a von Pirquet reaction was also done, which gave a strongly positive result. Her eyes, too, were examined by Mr. Mayou, who pronounced that she suffered from tuberculous iritis, which had, however, subsided into a quiescent condition. The points upon which he lay stress were that one eye only (the right) was affected, and the presence of keratitis punctata. The section, too, showed an infiltration of small round cells only, grouped in a manner suggesting a tuberculide. The final diagnosis, therefore, was lichen scrofulosorum, and a point of great interest in connexion therewith is the association with tuberculous iritis —a most unusual combination.

As regards treatment, tuberculin was suggested for the skin eruption, but as the iritis was quiescent it was considered that this method of

treatment would not be justifiable, as it might cause the recrudescence of trouble in the eye. On the suggestion of Dr. Pringle, thyroid extract will now be tried.

DISCUSSION.

Dr. GRAHAM LITTLE did not think that this case could be included in the clinical group with such definite characterization as lichen scrofulosorum, which, in his opinion, this case did not even resemble. In many of the lesions there was definite follicular atrophy, which did not occur with the clinical variety he associated with the name lichen scrofulosorum. The negative Wassermann could not, in his opinion, be regarded as excluding syphilis, which this case much more nearly resembled, and the iritis might as well be syphilitic as tuberculous.

Dr. MACLEOD said that the case suggested a type of eruption which had on several occasions been reported as having occurred after the injection of the old tuberculin for purposes of diagnosis.

## Generalized Eruption, probably Mycosis Fungoides, in a Man aged 63.

By T. COLCOTT FOX, M.B.

THE history obtained was that the patient had sore nostrils for twelve months about three and a half years ago, and some red spots on the head. Gradually larger patches appeared on the legs and body. He has had a good deal of treatment, such as by arsenic internally and resolvents externally. The President first saw him in January, 1910, and then the body and limbs were the seat of disseminated, somewhat psoriasiform, indolent reddened patches, up to half-a-crown in size, some macular and some rather infiltrated. They were very itchy. In contrast to psoriasis the patches inflamed up under the action of tar applications. There was a successive formation of these lesions, and some gradually disappeared spontaneously. On the scalp were several smooth tumour-like formations about the size of a walnut.

At the present time the patient is in much the same condition, but the lesions have decidedly increased in number. The tumours of the scalp have disappeared. There is no history of syphilis or of any nerve trouble. The buccal mucous membrane is free.

The diagnosis of the pre-tumour stage of this malady is always of interest. He would be grateful for any suggestions for treatment.

DISCUSSION.

Sir MALCOLM MORRIS asked whether the nodules of the scalp projected to a greater extent than those in other parts of the body. Also, was there any history previous to the twelve months during which Dr. Colcott Fox had known of the case? He said that all the long-standing cases that he had seen had been made worse by treatment with tars and such-like preparations.

Dr. PRINGLE entirely corroborated the diagnosis, and said that treatment by means of the X-rays would probably be very useful, and was not so difficult to carry out for such extensive lesions as might be imagined. One similar patient whom he had had under observation for at least ten years had been "kept in order" by means of the X-rays at intervals of a few months, and had had no definite return of mycotic growths for the last twelve months. Whenever a localized patch of erythema with infiltration or mycosis appeared he was promptly treated at the hospital, with the result that he was kept practically well.

Dr. STOWERS reminded members of the case of a clergyman, aged 31, exhibited by him in 1902. The manifestations, closely resembling those of the present patient, were recognized as the early stage of mycosis fungoides in 1893. The disease developed and proved fatal about 1906, in spite of persistent treatment, including X-ray.

Dr. SEQUEIRA said that he had seen several cases which had relapsed in spite of the X-ray treatment. One patient whom he had brought before the Section, and whose portrait had appeared in the *Proceedings*, after being entirely free from this disease, relapsed on going into the country about six months afterwards, and had since died, apparently from exhaustion following severe diarrhœa.

## Case for Diagnosis.

By T. COLCOTT FOX, M.B.

THE patient was a childless married woman, aged 43, with a group of rounded ulcers on the left arm just above and over the elbow-joint. The first lesion is said to have begun with a "pimple," October, 1909. In January, 1910, she was an in-patient for a diseased heart and rheumatic pains. When Dr. Colcott Fox first saw her she had an intractable, round ulcer on the arm, and he could only get it to heal when the dressing was sealed up by collodion. When it was healed another similar ulcer appeared in the immediate neighbourhood with the same characters, only healing under collodion dressing. A third and a larger fourth ulcer appeared in the immediate neighbourhood when those previously existent healed up.

[1] *Proceedings*, 1910, iii, p. 37.

The President said such a case presented much difficulty. He failed to assign it to any cause, such as syphilis, and strongly suspected an artefact dermatosis, though the patient was not strikingly hysterical.

The opinion generally expressed coincided with Dr. Colcott Fox's view.

## Sarcomatosis Cutis of the "Perrin" Type in a Man aged 25.

By E. G. Graham Little, M.D.

The disease had begun probably nine weeks ago, with lesions on the chest. There had been no subjective symptoms, and this patient had seemed in his usual robust health. He was seen at St. Mary's Hospital for the first time a fortnight ago, and then had an efflorescence of the following character: Scattered over the chest, the back, and the upper part of the arms and thighs there were very numerous roundish elevations, the skin covering them being of a faint pink colour, and showing rather accentuated "pores." There was no scaling or other alteration of the surface. On palpation the pink surface was found to cover a tumour mass of considerable firmness, but not hard, and the size and elevation of the swelling was about that of a half-walnut. The largest of these tumours was on the middle of the front aspect of the left thigh. He had, in addition, a hoarse voice and great congestion of the fauces, uvula, and throat; the tonsils were swollen as well. He was seen by Dr. William Hill, who regarded the throat as probably syphilitic. The opinion at first formed by the exhibitor of the eruption was that it was mycosis fungoides of the "tumour d'emblée" type described by French authors, but the complete absence of any itching or other subjective sensation and the rapidity of the increase seemed to forbid this diagnosis. At the instance of Dr. Hill a Wassermann reaction was tested in the Inoculation Department, and was reported to be negative. A small tumour the size of a shilling was excised from the shoulder, and on microscopic examination the diagnosis of large round-celled sarcoma was made by the exhibitor. Sections were submitted to the meeting, and this diagnosis was confirmed.

The sarcomatosis cutis was apparently primary, for no earlier accident or operation was mentioned, inquiry being pressed in this direction. There was considerable general enlargement of glands in the neck and

groin. The blood had not been examined, but it was proposed to take the case into hospital, and a more detailed report, in view of its extreme rarity and importance, would be contributed later to the *British Journal of Dermatology.*

Sir MALCOLM MORRIS suggested that the man be given arsenic in large, even poisonous, doses, or atoxyl.

## Nævo-lipomata in an Infant.

By E. G. GRAHAM LITTLE, M.D.

THE patient was now aged 10 weeks, and there was a widespread capillary nævus (port-wine mark) of the side of the body, and in addition a number of large circumscribed smooth fatty growths, from the size of a hen's egg; there was a diffuse, fatty infiltration of the skin as well over the whole upper part of the back and the shoulders without actual tumour formation; the integument here was so much thickened and swollen as to cause deformity, but the surface of the skin was normal; both the nævus and fatty swellings were congenital; the latter were increasing rapidly in size, according to the mother's statement. The child was of Jewish parentage, and was somewhat wasted and thin. Congenital lipomata were rare; the exhibitor had never seen in his fifteen years' experience at the Children's Hospital a quite similar case.

No other diagnosis seemed probable, and this was accepted by the Section.

## Case of Pityriasis Rubra Pilaris.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a young woman, twelve months married, aged about 26; she had no antecedents which were relevant to the eruption, which had commenced a fortnight previously, apparently on the chest. She was now very extensively covered with a quite typical eruption of follicular acuminate papules where these were discrete; with sheets of scaly dermatitis where coalescence of the eruption had occurred. The scalp, face, forearms, hands, back, thighs and legs were thus involved in sheets of dermatitis, but the eruption was nearly universal; in other parts—as, for example, on the chest—the papules were discrete. There

was the usual horny, dirty-looking thickening over the joints; the phalanges were covered with exfoliating thickened skin, so that the follicular papules so characteristic in these parts could not be distinguished. There were no lesions of mucous membranes. She had never had any skin eruption prior to this attack.

DISCUSSION.

Dr. WHITFIELD asked whether Dr. Little knew a satisfactory treatment for the disease. He had a case which he had treated for seven years with every described remedy without being able to modify it in any way, except that when he macerated it the scales came off, but it recurred.

Dr. SEQUEIRA said he had tried small doses of tuberculin in one case, but he could not say there was much improvement. The patient gave a positive reaction to the von Pirquet and Moro tests. Milian had reported cases in which great benefit had followed injections of tuberculin, and some of the French writers looked upon pityriasis rubra pilaris as a tuberculide.

## Case of Granuloma Annulare.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a young man, aged 18, who for three years had had the small lesion seen at present on the back of the left hand, near the base of the left middle finger. The lesion consisted of a ring formed of discrete, shiny and flattened, white, wax-like papules, closely juxtaposed and forming an almost continuous ridge. In the centre of some of the papules, especially on the radial side of the ring, there was a slight depression. The ring was ¾ in. in diameter, and formed a perfect circle enclosing an area of skin which in all other respects was normal, except that it was somewhat purplish in colour, considerably darker than the rest of the skin. The earliest lesion had been a single nodule or papule. There were no subjective symptoms connected with it and no lesions anywhere else. The extremities were habitually blue and cold. The patient's family history was instructive: the maternal grandmother had died of "cancer"; of a numerous family all the mother's sisters and brothers, with the exception of one, had died of "consumption." This predominance of tuberculosis in the family history had been frequently noted in cases of granuloma annulare.

The nomenclature of this disease, it was hoped, would be settled in the near future. In the last edition of Hyde's "Diseases of the Skin"

granuloma annulare was adopted as the most convenient name out of ten alternatives mentioned with it. This name had, at any rate, the merit of distinctiveness; it had a long start of all others, it was probably destined to win in the long run, and the sooner it was finally accepted the better.

DISCUSSION.

Dr. PRINGLE raised a question whether this was a case of granuloma annulare; the papules with the central depression were unfamiliar to him in that connexion; the possibility of porokeratosis must be kept in mind.

Dr. COLCOTT FOX and Dr. ADAMSON supported the diagnosis made by the exhibitor.

[In view of the differences of opinion sections will be shown later.]

## Case for Diagnosis.

By Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S.Ed.

THE patient was a man, aged 72, who had lived for many years in India. He was first seen by the exhibitor in 1903, when he complained of a large thickened patch of skin covering the upper third of the outer surface of the right thigh. The lesion consisted of cutaneous and subcutaneous nodules forming a large area of irregular shape, resembling in appearance and consistency a patch of sclerodermia. When he was seen again this year it was noted that the thickening had extended downwards and had disappeared from the upper part. The nature of the disease was obscure, but, owing to the fact that some of the nodules had come to the surface and discharged a clear fluid, it was suggested that the lesion was of the nature of a lymphangioma cavernosum. It was thought by some of the members present to be allied to the cases described as "benign sarcoid of Boeck."

DISCUSSION.

Dr. ARTHUR WHITFIELD expressed the opinion that the case belonged to the type called "benign sarcoid" by Boeck. Most of these tumours had been shown to be tuberculous in nature, but if this was tuberculous it must be a most extraordinarily chronic case. He suggested a diagnostic injection of old tuberculin.

Dr. PRINGLE was inclined to accept Dr. Whitfield's suggestion that the condition corresponded in many respects with the "sarcoids" of Boeck. According to his recollection of the literature of the subject, however, the

lesions were generally much smaller and widely scattered, not massed together as in the case exhibited. He had only had one case corresponding to Boeck's description under his own observation, which had previously been variously diagnosed as multiple gummata, tubercular nodules, and Bazin's disease. Unfortunately the man had been lost sight of.

## Melanodermia associated with Pernicious Anæmia.

By J. H. SEQUEIRA, M.D.

THE patient, a man aged 30, was a butcher in a country village. He had never had anything to do with the preservation of meat or hides with chemicals. His general health had been good until July, 1909. There was no history of syphilis and the Wassermann reaction was negative. His illness dated from July, 1909, when he first complained of intense irritation all over the body. The itching was worse when the weather became cold. For eight months pruritus was the sole symptom, but six months ago, on leaving work, he noticed a red " rash " on the wrists and arms. The erythema spread, but passed off in a couple of days and was succeeded by desquamation, the skin peeling off in flakes as large as a shilling or less. This scaling affected the whole body, and continued for some time after the patient's admission to the London Hospital on August 30, 1910. Six weeks before this his hair began to come out, and at the end of August he was completely bald.

On admission, the patient was obviously very ill, his face was haggard and shrunken, and this, with the baldness, gave him the appearance of a decrepit old man. His weight was only 6 st. 7 lb. He still complained of intense irritation all over the body and of a peculiar sensation, as if water were running off the skin.

During the illness the skin gradually darkened, and on admission to the ward the chest, abdomen, back, arms and legs were of a brownish-black, almost negroid tint. The face was of a greyish-brown colour, and there was less pigmentation of the scalp and the hands than of other parts. The mucous membranes, so far as they could be examined, were free from pigment.

During the early part of the illness there was grave dystrophy of the nails. In addition to the pigmentation of the skin there was slight scaliness, and on the trunk and extremities there were numerous blebs the size of a split-pea. The bullæ were very numerous on the back and on the palms. They ruptured soon after their appearance and a

clear fluid exuded. The ruptured bullæ left a blood-tinged spot, which in some instances became slightly cicatricial and white on healing. When shown at the meeting the scaliness and the bleb formation had ceased, but the skin of the extremities was exceedingly tough and could not be pinched up.

General condition: The teeth were all extremely carious. The mouth was very foul and the patient complained of an unpleasant taste; before speaking he always had to moisten his lips and buccal mucous membrane. All through the illness the appetite had been very good, and even ravenous. There had been no excessive thirst, and no nausea or sickness. There had been no abdominal pain. The bowels acted regularly, but were slightly loose while he had been taking medicine in hospital. The liver and spleen were not enlarged and nothing abnormal could be felt in the abdomen. The urine was normal in amount and constituents. There were no symptoms of pulmonary disease. The heart was not enlarged, but there was a systolic (hæmic?) murmur over the pulmonary area. The pulse was regular and full. The blood-pressure had never been very low; in October it registered 116 mm. of mercury. The internal administration of adrenalin raised the pressure very little.

The blood examination revealed a remarkable diminution of red corpuscles, with poikilocytosis. September 3: Red cells, 1,530,000; hæmoglobin, 28 per cent.; colour index, 0·9; leucocytes, 5,800; poikilocytosis, normoblasts, megaloblasts present. September 10: Red cells, 1,135,000; hæmoglobin, 24 per cent.; colour index, 1·1; leucocytes, 14,000; poikilocytosis as before. On September 15 he was given (on Dr. Grünbaum's suggestion) a subcutaneous injection of arsacetin (2 gr. in ♏x of water), and this was repeated every night till September 23, when the injections were stopped on account of diarrhœa. On September 25 there were 1,950,000 red cells; hæmoglobin, 35 per cent.; colour index, 0·9. There was still poikilocytosis. On September 30 he was put on Fowler's solution ♏iv, tr. nucis vom. ♏v thrice daily in water after food. This medicine was continued till October 25, when ♏ii of Fowler's solution were added to each dose. On October 17 the blood contained 2,350,000 red cells; hæmoglobin, 35 per cent.; colour index, 0·8. Poikilocytes, normoblasts, and megaloblasts present. On November 3 the blood condition was almost identical.

During the early part of his stay in hospital the patient was in a very grave condition, but he had improved remarkably with the arsenic preparations. His hair began to grow rapidly, and he began to take

an interest in life and put on weight steadily, scaling 7 st. 2 lb. on October 18.

Besides the internal treatment and full diet, local applications of lead, calamine, and weak carbolic solutions had been applied to relieve the itching, but without much benefit. It was subsequently found that a soothing ointment of zinc carbonate with a little salicylic acid gave the most relief. He also had oatmeal baths.

The condition was so unusual that the exhibitor was unable to do more than hazard the suggestion that the pigmentation depended upon some adrenal disease. It was questionable whether the pernicious anæmia alone could explain the remarkable discoloration of the skin. It was absolutely certain that it did not depend upon arsenic, because it had diminished to a considerable degree while the patient was having the arsacetin injections and taking arsenic by the mouth.

Since the meeting Dr. Parkes Weber has kindly drawn Dr. Sequeira's attention to a case published by Dr. Neumann,[1] in which a man, aged 57, who was supposed to have Addison's disease of acute onset, suffered from severe anæmia. The blood-count rose from 1,120,000 on April 15, 1885, to 7,700,000 in January the following year, and then fell below normal.

DISCUSSION.

Dr. PRINGLE asked whether there was any evidence of pancreatic disease, of which the pigmentation was suggestive.

Dr. SEQUEIRA, in reply, said no pancreatic disease, nor anything abnormal, could be found in the abdomen. The duration was fourteen months, and the patient was now getting better. He had never given up meat, but always had a mixed diet. The condition of the pulse had never suggested adrenal inadequacy, and there had been no visceral crises.

## Symmetrical Angiomatous Swellings in a Tuberculous Subject.

By J. H. SEQUEIRA, M.D.

THE patient, a tall, emaciated man, aged 21, had suffered from infancy from cold hands and feet, but had never had chilblains. He is said to have had some chest complaint when a child, and had recently had enlargement of the cervical glands. When aged 12 red patches

[1] *Deutsch. med. Wochenschr.*, 1894, xx, p. 105.

appeared upon the hands, elbows and feet, and on the knees and ears. He described a patch as beginning with the formation of dark-red "pimples" upon which "blisters" developed. Upon the red patches annular elevations the size of a sixpenny-piece appeared. These rings lasted for a few weeks and constantly recurred, and he was never free from them.

On admission to the hospital there were symmetrical purplish-blue flat swellings of irregular outline on the backs of the hands and wrists and on the knuckles, and also on the dorsal surface of the feet, elbows, knees, and on the lobules of the ears. On the wrists and backs of the hands the swellings were as large as half-a-crown. Upon them there were small warty elevations as large as a pea, and several annular swellings the size of a sixpenny-piece. The lesions were limited to the skin. Those on the ears were nodular and about the size of a small pea. On the front of the right knee there was a keloidal scar. The purplish swellings were blanched by pressure, and slight traumatism caused a troublesome ulceration. The lesions were painful and always much worse when exposed to cold. With warmth the colour lessened and the pain was less. The patient gave a positive reaction to the von Pirquet test, and there was a marked enlargement of the cervical glands on the right side.

A portion of one of the lesions, including one of the annular swellings, was excised for microscopical examination, and a section was shown at the meeting. In the epidermis there were a few areas in which the prickle-cell layer was slightly thickened. The main changes lay in the dermis, and consisted of a vascular hyperplasia and cellular infiltration. The vessels were very numerous and many were tortuous, and their walls showed a marked thickening. The cellular infiltration was most marked immediately below the epidermis and around the vessels. It consisted of mononuclear cells, most being of the early fibroblast type. Lymphoid cells and plasma cells were scarce. Dr. Sequeira was indebted to Dr. Panton for the report on the sections.

The vascular hyperplasia led the exhibitor to suggest a relationship between the affection and angiokeratoma, in which there appears to be little involvement of the epidermis in some of the reported cases. Many authors have described angiokeratoma as a tuberculide, and the patient shown was undoubtedly tuberculous. The cellular infiltration, however, was not of the type met with in the affections commonly recognized as tuberculides, there being very little of lymphoid- or plasma-cell infiltration.

Dr. PRINGLE said he did not think the case tallied in any respect with the original conception of angiokeratoma as first described by Mibelli in 1889, his own cases being published in the *British Journal of Dermatology* in 1891. The original cases presented merely dilated telangiectases with some horny keratosis on top of them, but ulceration was foreign to it. He believed the case shown was an instance of tuberculosis occurring in a person with low peripheral circulation. Most dermatologists now agreed in negativing any direct connexion between chilblains and tubercle. He was well aware that certain aberrant types of angiokeratoma had been described and accepted as such since the dates mentioned, but he thought it would be a pity to extend the term "angiokeratoma" to the present condition.

## Case of Parakeratosis Variegata (?)

By A. WHITFIELD, M.D.

THE patient was a baker, aged 57. On December 21, 1908, he was operated upon for hernia, and, owing probably to lying in a bad position after the anæsthetic, he developed some paresis of the right arm. This was treated with the battery and passed away. Three months later—i.e., about one year and eight months ago—he developed the present eruption on the right arm. This got gradually worse, and then, about nine months ago, appeared on the left arm, since which time it had remained more or less stationary with a tendency to become more marked.

On exhibition the rash was seen to be limited to the forearms and the lower thirds of the upper arms. There was no rash elsewhere on the body or in the mouth. The eruption was more marked on the flexor than the extensor surfaces and consisted of an exquisite network of bluish-red, very flat lesions. On studying these closely it was found the lesions were in some cases very slightly raised, in others slightly depressed. They were polygonal in outline, showed no surface disturbance, and partly disappeared on pressure, leaving a brownish stain. In the lesions one could make out with a lens a certain amount of capillary telangiectasis, but there were no white striæ such as one sees with lichen planus. No infiltration could be detected with the finger. Itching was slight. A biopsy had been performed with the following results:—

In places there was a patchy pigmentation of the basal epithelial layer. Over one of the lesions the epidermis was markedly atrophied,

the palisade layer having disappeared and the mucous layer being reduced to four or five flattened cells resembling in shape those of the stratum granulosum; the granular layer itself was present and the horny layer apparently normal. Beneath the atrophied epidermis, which was sharply limited, there was a well-defined small patch of lymphoid infiltration, the pressure of which appeared to be flattening out the epithelium above. The rest of the skin was apparently normal. It would seem that the early lesion was the infiltration which caused slight raising of the skin surface, and by interfering with the circulation determined the telangiectasis. After a time the epidermis atrophied over the infiltration, causing flattening of the papule and resulting in shallow depressions where the infiltration resolved.

The exhibitor said that the diagnosis was quite tentative, but the eruption strongly resembled that in Dr. Colcott Fox's classical case.

## DISCUSSION.

Dr. GALLOWAY remarked on the fact that the eruption in this case was on the arms and nowhere else on the body. The distribution and appearance suggested that the erythematous and atrophic condition of the skin might be due to the long continuance of some form of irritation arising possibly in the patient's occupation. Members of the Section were no doubt familiar with various forms of irritation and chronic inflammation of the skin which advanced to a condition of local atrophy, and it was often difficult to give an exact explanation of their cause. He quite recognized the points of resemblance in the patient's condition to what had been termed "parakeratosis variegata." Dr. Galloway said he would be glad if Dr. Whitfield, in his reply, would state what he considered the clinical criteria determining the diagnosis between the very chronic forms of "seborrhœic inflammation" and "parakeratosis variegata." Did he think that the superficial infiltration of the cutis in the latter condition could be recognized by clinical observation?

Dr. PRINGLE said he thought it was probably an example of so-called "parakeratosis variegata," but it was in such an early stage that one could not be certain. The microscopic appearances of the sections shown entirely confirmed the diagnosis of the exhibitor. While sympathizing with the view of Dr. Whitfield as to the undesirability of unnecessarily overloading dermatological terminology, he agreed with some of his critics that the term "parakeratosis" could only be considered as suitable on the *lucus a non lucendo* principle. He much preferred Dr. Radcliffe-Crocker's name of "lichen variegatus," the disease having close clinical resemblances to lichen planus, for which it was so frequently mistaken; even the microscopic appearances had much in common with true lichen.

Dr. WHITFIELD, in reply, said he did not wish further to burden the already heavy nomenclature of dermatology. The train of symptoms which had been described under the name given was marked by the absence of parakeratosis and the presence of infiltration. He might have called it Unna's disease, but he preferred the name under which it appeared. It was extraordinarily retiform. At first he thought it was telangiectasis until he got a good light on it, and then it was found to consist of lichenoid papules, some above the skin and some below. That put out of court anything like superficial epidemic catarrh, and it left one with only lichen planus as an alternative in addition to parakeratosis variegata.

## Case of Keratosis of the Finger.

By A. WINKELRIED WILLIAMS, M.B.

THE patient was a medical man who had a small patch of keratosis surrounding the pores of one finger resembling the porokeratosis reported by Mantoux from Brocq's clinic.[1] Twenty years ago the finger was cut when the patient was dissecting. The cut healed by first intention, but one month later the skin around the scar became rough and some years after slightly verrucose. It had been treated by chemical caustic and by the X-rays. The latter removed the condition for a few months, but it had subsequently returned in the same arm and had persisted.

Dr. PRINGLE said that he agreed with Dr. Williams that the case was a "keratosis," but it was certainly not the disease first described by Mibelli as "parakeratosis."

[1] *Brit. Journ. Derm.*, xv, p. 209.

# Dermatological Section.

December 15, 1910.

Dr. T. Colcott Fox, President of the Section, in the Chair.

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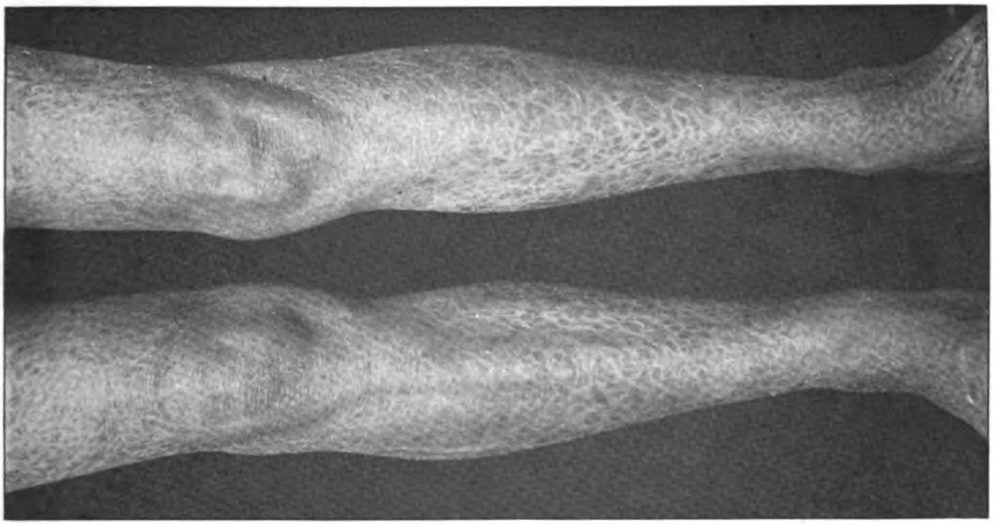
## Secondary Syphilis in which fading Roseola simulated Ichthyosis.

By H. G. Adamson, M.D.

The patient was a woman, aged 40, who had first attended the hospital two weeks ago. The skin of the legs, from the groins to the ankles, presented a condition which closely resembled that of congenital ichthyosis. The horny layers of the epidermis were mapped out into polygonal, brownish-coloured patches, or what appeared to be flat scales



Syphilide simulating ichthyosis.

adherent at their central part and free at their margin. The forearms were similarly affected, but to a less extent. This condition was limited to the arms and legs, and was of recent origin, thus excluding the diagnosis of ichthyosis. Further examination had revealed the fact that the patient had syphilis. Several typical lenticular papules were found on the trunk and limbs, and two on the palm of the right hand. There were alopecia, patchy loss of eyelashes, deafness, and general glandular enlargement, all of recent origin. The patient's husband had been attending for syphilis for the past nine months. The blood of the patient had given a positive Wassermann reaction. The present condition, which so closely simulated ichthyosis, was apparently the remains of a widespread and profuse roseola, the brownish patches or scales occupying the seats of former macules.

## Case of Epidermolysis Bullosa.

By WILLMOTT EVANS, F.R.C.S.

THE patient was a woman, aged 46. There was no history of heredity, and she said that the disease did not appear till she was about 12 years old. The bullæ developed especially on the limbs, and some of them were hæmorrhagic. The nails hardly exist, and she had no teeth, as she had lost them when comparatively young. Mr. Evans first saw the case nine years ago, and he had noticed, as has been recorded in other cases, that the bullæ were less easily evoked at the present time than when he saw her before. Now, she never developed any bullæ on the back or neck. He mentioned that the patient had been in most of the hospitals and infirmaries in London, and she had been known to many members of the Section at different times.

## Case for Diagnosis.

By T. COLCOTT FOX, M.B.

THE patient was a woman, aged 42, with dull red, indolent, inflammatory nodules distributed round and just above both ankle regions except in front. There was also a small lesion on the dorsum of one toe, and an isolated nodule higher up on the back of one calf. The nodules were crowded in places, and varied in size from a pea to a

filbert or more. They presented a dull, indolent red colour, and some had ulcerated. This was the fourth outbreak the patient had experienced over about ten years, the last occurring two years ago. She has the scar of a glandular abscess in the neck, and an unusually marked family history of phthisis in her brothers and sisters and former generations.

The exhibitor said such cases were always interesting, and he did not think it right to hold a positive opinion as to its nature without further research. He thought it probably a tuberculide, and in many respects approaching Bazin's erythema induratum, but the localization was not typical. As the patient was aged 42 he would much appreciate Dr. Whitfield's opinion, but it was probably not the type Dr. Whitfield had differentiated from erythema induratum.

DISCUSSION.

Dr. PRINGLE said that one of the isolated lesions at the upper part looked and felt like erythema induratum of the tuberculous form. The alternative diagnosis was syphilis, and he suggested the propriety of a Wassermann test.

Dr. WHITFIELD said he had never seen in young people the type of non-tuberculous nodule which he had separated from erythema induratum, nor had he ever seen ulceration in the non-tuberculous form. In this case he recommended very cautious treatment with old tuberculin. He had had very good results with it. He got a physician to overhaul the condition of the patient's lungs, and began with $\frac{1}{4000}$ c.c., which was not enough to cause a reaction, but he doubled the dose each week until there was a constitutional disturbance. Recently he had treated a case in this way, and of five nodules four had absorbed rapidly without ulceration, and the fifth had discharged through a pin-hole opening, afterwards rapidly healing.

Sir MALCOLM MORRIS said that in the old days it was the second dose of the tuberculin which caused the reaction. Small doses of the new tuberculin did not cause a reaction. He doubted the wisdom of giving tuberculin in cases which were easily cured otherwise.

## Acne Scrofulosorum in a Girl aged 12.

By E. G. GRAHAM LITTLE, M.D.

THE case, in which the lesions were very typical, closely resembled one shown by the exhibitor in 1902, also in a girl (A. D., aged 10[1]). On comparison of this case now shown with the water-colour drawing

[1] *Brit. Journ. Derm.*, 1902, xiv, p. 92.

also shown of this older case the resemblance was striking. The eruption had appeared a few weeks previously, and was confined to the lower limbs, not being seen higher up than the middle of the thigh. Below this level it was very copious, and consisted of small dark red, almost bluish, deep-seated follicular papules, with a small pustule in the centre of many of them. There were no pitted scars as yet, the eruption not having lasted long enough to produce them. There was no family history of consumption, and the child's condition was apparently normal. There was no blueness of the extremities, which is almost always seen in these cases. She was, in fact, well nourished and of good colour.

In the exhibitor's experience acne scrofulosorum was the rarest of the tuberculides. It was common in the East End, as a comparison of the cases seen at the Children's Hospital, Shadwell, and at St. Mary's Hospital showed. The duration of the eruption varied greatly—the exhibitor had watched a case continuously for eighteen months, during which the lesions had persistently appeared; now, commonly, the duration was much shorter. The distribution was markedly greater on the lower extremities, and in some instances, as in the present case, confined to these. They were more often seen in winter than in summer, and "chilblain circulation" was a frequent association.

A question having been raised as to the relationship of acne cachecticorum to the tuberculides, and particularly to acne scrofulosorum, Dr. WHITFIELD said that when he was in Vienna Kaposi used to apply the term "acne cachecticorum" to an ill-defined condition of the skin, usually occurring in old people, associated with general marasmus. The skin showed an indolent folliculitis, which suppurated as the result of trauma. He did not think that acne cachecticorum of the Vienna school was usually tuberculous in nature.

## A convenient Method of giving "606" Intravenously.

By J. E. R. McDONAGH, F.R.C.S.

INTO a graduated glass measure of 250 c.c. capacity about 20. c.c. of warm saline solution, made from *distilled* water, are poured, and in this the powder dissolved, without the addition of any alcohol, since salvarsan is more soluble than the earlier preparations of "606." If the saline is made from tap-water a precipitate forms on adding sodium hydrate.

When the powder has become completely dissolved 10 c.c. to 15 c.c. of $n/5$ sodium hydrate are added until the precipitate first formed becomes completely dissolved.

Under no circumstances must the fluid be injected until it is absolutely clear and contains no solid particles—it can always be strained through muslin before use if necessary.

The bulk is finally made up to 8 oz. or to 250 c.c. with warm saline *distilled* water. The measure should stand in a vessel of hot water so that the solution is kept warm while it is being injected.

The syringe is made by B. B. Cassel, Frankfurt a/M, after Schreiber's directions.

The cannula is bayonet-shaped, bent, and fixed to a three-way metal stop-cock, so that the fluid can be drawn up from the vessel and injected directly into the vein.

The needle has also a plate at its base upon which a finger can rest to keep it steady.

The syringe is first filled with saline solution from another vessel by means of rubber tubing fitted on to the stop-cock, and all the air is expressed.

The needle is inserted into a vein made prominent by means of a tourniquet; occasionally, especially in women, the vein has to be exposed by an incision. If the needle is in a vein blood flows back into the syringe or no infiltration forms when the saline is injected. Having hit off a vein the tourniquet should be released and the rubber tubing changed to the "606" solution, which is gradually drawn up and injected into the vein 20 c.c. at a time—the amount a Luer's syringe holds. Finally the tubing is replaced in the saline solution, a small quantity of which is injected to prevent the leakage of a drop or two of the "606," which is extremely painful when it gets into the subcutaneous tissue.

Should the needle slip during the injection, allowing some of the solution to escape, the patient complains at once of an acute burning sensation. The needle should be withdrawn and a tourniquet applied above to allow the vein to bleed, and in this way dilute the solution; this procedure usually prevents an infiltration forming.

Under ordinary circumstances the patient experiences no pain while the injection is made—occasionally a "swimming" feeling in the head and a tingling sensation in the fingers and toes, but only when the solution is injected cold.

A few hours later the temperature may rise to 101° F. or 102° F., there may be a rigor or two and an attack of vomiting, but the next morning the patient wakes up feeling perfectly well.

If the patient is prepared for an intravenous injection, as for a

surgical operation, the subjective symptoms may be *nil*. Owing to the arsenic being excreted within three days, the injection may safely be repeated if the symptoms have not shown marked signs of improvement within three days. If, on the contrary, the symptoms disappear, a second injection should only be given on obtaining a positive Wassermann's reaction about four weeks later. The second injection may be either intravenous or intramuscular.

### Advantages of the Intravenous Route.

(1) Much less inconvenience to the patient.

(2) The action is quicker and greater.

(3) Toxic symptoms are very much less.

(4) The reaction is of much shorter duration—a very important factor in treating nervous diseases.

(5) An arsenic depot is not formed, which becomes a danger when a second injection has to be given, as the encapsuled arsenic may become liberated, and with that injected form a toxic dose.

(6) Recurrences are much fewer.

(7) A syphilitic patient never fails to respond, which is sometimes the case after an intramuscular injection.

The dose for an intravenous injection varies between 0·3 grm. and 0·5 grm. according as the patient is a female or male.

## DISCUSSION.

Dr. Pringle said he had seen Mr. McDonagh make the injection; the operation was a perfectly simple one, and appeared to present no difficulty. In a case of malignant syphilis, which Mr. McDonagh injected for him last week, the effect was remarkable, but some induration persisted along the median basilic vein as far as the axilla. He wondered whether that was important and whether it often occurred. The amount of arsenic eliminated by the urine had been small in his case, but probably much would be found in the fæces.

Dr. Sequeira said it was of the utmost importance that the drug should be perfectly dissolved before injection into the veins. He knew of one case in which the drug was introduced in a state of imperfect solution. The patient immediately became comatose and hemiplegic. Fortunately she recovered after some anxious hours, and her subsequent treatment by the intramuscular method had been followed by the rapid disappearance of the evidence of syphilis. He questioned the necessity of giving "606" intravenously if the injection had to be followed by a second dose given intramuscularly, as recently

advocated. The great advantage of the intravenous method lay in the elimination of the pain. The formation of an arsenic depot in the tissues seemed likely to be of greater therapeutic value than the introduction of the drug into the veins and its elimination from the body in three days. The relative value of the methods could only be learned by further experience.

## An Unusual Case of Linear Nævus.

By J. H. SEQUEIRA, M.D.

THE special features of the case were the bilateral arrangement of the streaks and the remarkable pigmentation of the trunk. The patient, a boy aged 5, presented lines of warty growths extending from the buttocks to the heel on each side, and similar streaks along the upper extremities from the axillæ to the backs of the hands. The warty excrescences varied in size from a millet-seed to a small pea. They were of brownish or yellowish-brown colour, hard, and, where large, fissured on the surface. Some had occasionally become ulcerated from traumatism. The streaks were broad on the hands and on the fingers, while the soles were almost covered with flat, brownish, warty masses. In addition to the warty streaks there was a remarkable pigmentation of the back; the pigment was arranged in curved lines radiating from the spinal column. The appearance suggested a feather. The pigmentation covered the greater part of the back. The surface of the skin in this region was quite smooth. There was a slight amount of pigment in irregular lines on the chest and upper abdomen. There was no history of a similar affection in other members of the family.

The case was shown to illustrate the fact that linear nævus is not always unilateral, to show the peculiar associated congenital pigmentation, and to ask for suggestions for the treatment of the feet and hands, the condition of which would certainly interfere with the patient ultimately getting a livelihood.

### DISCUSSION.

Sir MALCOLM MORRIS said that formerly the treatment was by means of the actual cautery.

Dr. WHITFIELD asked whether the X-rays had been tried. That treatment might do good, as there was no undergrowth, the condition being purely epithelial.

Dr. SEQUEIRA, in reply, said he was not disposed to push the X-rays in such a case. He had once had a case of tylosis sent to him in which prolonged treatment by the rays had caused profound sclerotic scarring, with immobility of the fingers. It appeared to be necessary to cause a dermatitis to get rid of the condition, and he did not think it would be wise to attempt X-ray treatment where the hands and feet were involved.

## Case for Diagnosis.

By F. ASHTON WARNER, F.R.C.S.Ed., and WILFRID FOX, M.D.

THE patient, A. M., was a man, aged 64, who had been under the care of one of the exhibitors (F. A. W.) at intervals for the past ten years. He was well-to-do, and had travelled in the East, but had had no fever or other illness peculiar to this region. As a young man he was treated for syphilis by pills. Some five years ago he complained of constant "rheumatic pain" in the calves of the legs and back. His gait at this time was sailor-like, with the legs wide apart, but not ataxic. He was treated with sulphur baths and mercurial inunction, and from time to time subsequently had had a course of iodide of potassium and mercury, but had taken neither drug for the past twelve months. Some fifteen months ago there appeared on the upper and inner side of the right leg, near a varicose vein, a raised, purplish-coloured, irregular-shaped lump, about ½ in. in length and ¼ in. in width, which could be picked up with the fold of skin between the fingers. There was no tenderness, and the surrounding skin appeared quite healthy. This was followed a few weeks later by a nodule on the right forearm, similar in all respects. Since then, both upper and lower extremities, buttocks and back, have been covered with these nodules. The general health was good, there was no enlargement of the spleen, and no glands could be felt. There were altogether upwards of 200 nodules in the skin, most of them quite superficially placed, being freely movable on the deep fascia below. Some few were, more correctly, subcutaneous. There were none on the hands, feet or face. A few small ones had made their appearance on the top of the scalp, but were tending to disappear. At no time had any of these nodules shown any sign of ulceration—the skin over them was perfectly healthy excepting in so far that it was shiny from stretching. There was no previous eruption before the nodules came, which could be looked upon as a pre-mycotic

stage. The nodules, after being up for some weeks, generally about eight to twelve, disappeared of their own accord, either by becoming concave in the centre, and the concavities spreading until only the outer raised rim was left, which was finally eaten away too, or by a similar process starting at the edge, eating its way into the centre until the nodule became crescentic in outline, and then gradually spreading further and further until nothing was left. A slight stain marked the situation where the nodules had been. The largest nodule was situated just below the right popliteal space, corresponding in size to a split tangerine orange. There had been no itching either before the nodules came or while they were in process of evolution, but a few of them had been slightly irritable just as they were disappearing. The itching had never at any time been intense—it could always easily be alleviated. The nodules were firm, and did not tend to break down at any point. The patient was otherwise a healthy, active man for his age, riding a bicycle frequently twenty and thirty miles in a day. The exhibitors were of the opinion at this stage that the diagnosis lay between sarcoma cutis, mycosis fungoides, or leukæmic infiltration of the skin. An examination of the blood was therefore made by Dr. Matthews, who reported as follows: Red cells, 5,760,000; leucocytes, 6,924. Differential count: Polymorphonuclears, 64·41 per cent.; large mononuclears, 20·94 per cent.; lymphocytes, 12·56 per cent.; eosinophiles, 2·09 per cent. There was no poikilocytosis. The chief alteration from the normal in the differential count, therefore, appeared to be an increase of the large mononuclears at the expense of the small lymphocytes.

A biopsy was made from one of the nodules on the arm by Dr. Warner under a local anæsthetic. The tissue was put through paraffin in the ordinary way and sections were cut. These sections were stained with borax, methylene-blue, Giemsa, Pappenheim, logwood and Van Gieson, acid-fast and acid-orcein. Under a low power the epidermis appeared normal except in so far that it was altered by pressure, and by the presence of increase in pigment. There was no ulceration or loss of surface in any part of the section. There were a few non-epidermal cells straying amongst the cells of the basal layer and prickle-cell layer. In the corium there was a dense infiltration of cells, which seemed by their large numbers and the pressure by which they were produced to have disintegrated the collagen bundles. The infiltration extended from the level of the subpapillary plexus down to the fat in the subcutaneous tissue. They were specially collected round hair-follicles and blood-vessels, although this was best seen at the edge of the infiltration, where

the number of cells was not so dense. In some places the cells were collected together very closely in small clumps, giving the appearance of giant-cells. In the dense part of the infiltration blood-vessels were extremely few; those that were present appeared to be thickened, and the endothelial cells lining their walls were unusually prominent. Under a high power the cells composing the epidermis again appeared to be normal, and the cells which had infiltrated into the epidermis from below appeared to be mononuclear cells resembling lymphocytes. The cells composing the infiltration in the corium varied in character: some appeared to be small lymphocytes, some large mononuclears, and some plasma-cells, although these latter did not take on the Pappenheim stain well. Some of the cells which took on the Pappenheim plasma-cell stain tended to be spindle-shaped, and looked like the plasma-cells, seen in a healing infective granulomatous lesion, which are becoming fibroblasts. The large mononuclear cells in the infiltration appeared to resemble those noticed in excess in the blood-smears, although, of course, this is difficult to confirm. The collagen in the dense part of the infiltration appeared to be broken up into little lumps, and in the sections stained with acid-orcein the elastic-tissue was also fibrillated and broken up, but there was no degeneration into elacin. The sections, as a whole, gave the appearance of the cells being due to an exudation from the blood-vessels rather than from a new growth of the fixed tissues. In the acid-fast preparation there was no sign of any leprosy bacillus.

The exhibitors were of the opinion, from the evidence of the slides, that any form of sarcoma or malignant disease appeared to be eliminated. The case is also clearly not one of the infective granulomata. Mycosis fungoides, which perhaps might be suggested by some part of the clinical history, is out of the question histologically, as there is no degeneration of the elastic tissue, nor is there any crenation of the cells composing the infiltration. The collection of cells containing the large single nucleus, especially in the lower part of the infiltration and round the blood-vessels, and the general aspect of the sections, seem to suggest that the tumours are due to some atypical blood disorder.

## DISCUSSION.

The members present were of the opinion that no definite diagnosis could be made.

Dr. PRINGLE said that clinically he would have had little hesitation in identifying the case with the condition long ago described by Kaposi as "idiopathic

multiple hæmorrhagic sarcoma of the skin," but in view of Dr. Wilfrid Fox's statement that the tissue excised was not sarcoma, and of the great discrepancies of opinion among histo-pathologists on the whole subject, he suggested that the specimens might be referred to a sub-committee for further investigation.

Dr. PERNET said that the late Dr. Radcliffe-Crocker and he had an apparently similar case without any precedent trouble in the skin, but the lesions broke down ultimately and formed mycosis fungoides tumours. They were mycosis fungoides *d'emblée*. One case, of which the present one reminded him, was diagnosed by Dr. Radcliffe-Crocker as of the lymphodermia perniciosa type of Kaposi. In the last stages of that patient's illness the head began to swell, and tumours very like those seen in the present case developed, but they were not so large as the larger ones in the patient before them.

Dr. WHITFIELD, on examination of the slides, suggested that the case would come under the head of sarcoid of Boeck.

Dr. MACLEOD considered that histologically the tumour could not be looked upon as a sarcoma, that it was not typically a mycosis fungoides, but might be some allied condition of this nature, perhaps lymphodermia perniciosa. A leukæmic nodule was also a possibility in spite of the blood condition. The exhibitors quoted a case of Lavenson's in which he spoke of "a leukæmic phase of leukæmia." This idea had been suggested to them by Dr. Rolleston, who had been kind enough to examine the slides.

Various members expressed a desire to see the case again at a later stage, and the exhibitors promised to do what they could do to persuade the patient to come.

## Chronic (Artificial ?) Skin Eruption in a Patient whose Case has been followed for Fourteen Years.

By F. PARKES WEBER, M.D.

FOR about the last seven and a half months the patient, a woman, now aged about 37, has suffered from a chronic vesicular or eczema-like eruption on the abdomen, and from superficial ulceration of two old laparotomy scars. She has likewise had one or two temporary patches of skin-eruption elsewhere. She says also that she has had amenorrhœa since the laparotomy in August, 1909, referred to later on.

During the last fourteen years she has been in various hospitals in London and elsewhere, and sometimes her condition (tympanites, vomiting, abdominal pains, etc.) had been considered desperate. On

various occasions laparotomies have been performed (four times altogether), and the stomach, colon, and all the abdominal viscera have been thoroughly explored, on the last occasion (in a large London hospital, August, 1909) by two incisions, one above and one below the umbilicus; but no evidence of any organic disease had ever been detected. At intervals the patient appeared to have been able to work hard as an expert cook.

The history of the case up to 1903 was given by Dr. Weber, in *Brain*.[1] In the years 1896 and 1897 vomiting of formed fæces and of oil enemata or enemata coloured with methylene-blue was observed.[2] From the histories of similar cases it appeared that vomiting of formed fæces (actual scybala) never occurred except in cases of *functional* disease—that is to say, it never occurred in so-called "fæcal vomiting" connected with acute or chronic organic intestinal obstruction.

The patient was last under direct observation in the German Hospital from December, 1909, to February, 1910. Her troubles included frequent attacks of vomiting, abdominal pain and distension, habitual constipation, headaches, and hysterical paresis of the left leg. Then her general condition improved very much, except for the appearance of the skin-eruption now in question. She moved about quite well now, and Dr. Weber attributed some of the improvement to the need (that has lately arisen) for the patient to help her mother, of whom she appeared to be fond.

Dr. SEQUEIRA said he was present at the operation on the patient at the London Hospital, when Sir Frederick Treves examined the alimentary canal from one end to the other, but found nothing abnormal, except the adhesions left by the previous operations.

[1] *Brain*, Lond., 1904, xxvii, p. 170.

[2] Cf. Sir F. Treves' account of the case in the *Trans. Med. Soc. Lond.*, 1898, xxi, p. 224.

# Dermatological Section.

January 19, 1911.

Dr. T. COLCOTT FOX, President of the Section, in the Chair.

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## Case of Angiokeratoma.

By H. G. ADAMSON, M.D.

THE patient was a young lady, aged 21, a native of Spain. She had always been troubled by chilblains, and during the past five years, while she had been at school in a convent, the present condition of the fingers had developed. The hands and fingers were blue and cold, with a good deal of puffy swelling. Over the dorsal surface of the fingers there were scattered very dark purple patches from the size of a pin's head up to that of a split-pea. These patches were superficial, but generally not raised above the surface. They could be removed temporarily by rather firm pressure. The larger lesions were made up of collections of pinhead-sized patches. One lesion only, a split-pea-sized patch on the left little finger, showed a tendency to warty growth. It was slightly raised, hard to the touch, and roughened on its surface. The case was a characteristic example of the affection described by Colcott Fox, Mibelli, Pringle and others, and generally known as angiokeratoma. There were no lesions on the toes. There was no evidence of past or present tuberculosis. The coloured plates published in Dr. Pringle's article upon angiokeratoma [1] were shown for comparison with the present case.

### DISCUSSION.

Dr. PRINGLE was greatly interested in the Spanish nationality of the patient. The disease was by no means uncommon in certain districts, e.g., in Northern

[1] *Brit. Journ. Derm.*, 1891, iii, pp. 237, 282, 309.

Italy, where Mibelli first thoroughly studied it, and Audry (of Toulouse) reported that he had seen about ninety cases. The speaker himself, while once dining with six Italian gentlemen in London, observed that three of them had well-marked angiokeratoma. He had also reason to believe that the disease was common in Roumania, where chilblains were very prevalent. His own first case, published in the *British Journal of Dermatology* in 1901, was that of a very robust-looking, athletic girl, a native of Cornwall. The intimate and causal association of angiokeratoma with chilblains was obvious, but he had never been able to accept the view advanced by some writers that the disease was of tuberculous nature, although he knew that chilblains were of notoriously frequent occurrence in consumptive sanatoria. The telangiectatic element was undoubtedly the essential one, and the hyperkeratosis was clearly secondary, sometimes even absent.

The PRESIDENT said that at an International Congress in Vienna he saw a drawing belonging to Billroth, dated 1839, in which the condition was figured. He did not think the lesions were tuberculous. He preferred the name "telangiectatic keratoses."

## Erythema ab Igne or Livedo Reticularis with Pigmentation.

By H. G. ADAMSON, M.D.

THE patient was a young man, who had spent several years as a cabinet-maker's assistant, and whose occupation necessitated his standing for long periods in front of a large fire. The legs from the middle of the thighs to the ankles, on their anterior and lateral surfaces, presented a well-marked, dark, reddish-brown, net-like coloration. The redness could be pressed out, leaving the brownish stain. The case was shown as a very marked example of a well-known condition. It illustrated the theory that the erythema in such cases was the result of venous stasis, and that the peculiar pattern depended upon the anatomical distribution of the vessels in the skin. Renaut had shown that the blood distribution in the skin was mapped out into areas which were supplied by a central, deep artery and drained at their periphery by a network of veins; and it had been suggested that in an active erythema, or "roseola," the central arterial plexus was congested; in the passive erythema in livedo reticularis, the venous network; or, as Finger had put it—like the negative and positive of a photograph. The exhibitor referred to an interesting paper upon livedo annularis by Donnet.[1]

[1] *La Presse méd.*, Par. 1909, xvii, p. 338.

DISCUSSION.

Dr. F. PARKES WEBER said that similar reticulate erythema with pigmentation occurred not rarely elsewhere on the body; it was easy to produce it by long-continued application of heat. He had noticed it on the abdomen as a result of local treatment by hot compresses for abdominal disorders; and on the back it appeared in persons who, on account of lumbago, &c., had used flat india-rubber hot-water bottles. Reticulate pigmentation from hot applications sometimes afforded evidence that the patient had suffered from abdominal disorder, or from lumbago, &c., according to the position of the pigmentation on the trunk.

Dr. WHITFIELD said that prolonged gentle heat caused a paralytic hyperæmia.

Pigmentation associated with erythema ab igne.

## Cultures of Achorion Quinckeanum (Mouse Favus).

By H. G. ADAMSON, M.D.

THE patient was an English boy. The sole lesion was a shilling-sized, scaly erythematous ring, with two or three central pinhead-sized yellow scutulæ. A photograph was exhibited. On a previous occasion the exhibitor had shown cultures of *Achorion Quinckeanum* from the

glabrous skin in English children, and from the mouse.[1] Mouse favus had been regarded as of exceptionally rare occurrence in human beings. The exhibitor believed it to be not so uncommon, as this was the third case he had observed.

## Disseminated Tuberculous Nodules of the Skin.

By E. G. Graham Little, M.D.

The patient was a young woman, aged 26, a shop assistant at Uxbridge, whom the exhibitor had seen through the kindness of Dr. L. A. Francis. The history given by the patient was that six months ago she had been perfectly well, the earliest lesion and the largest now present—that on the forehead—having appeared soon after that date. Other similar lesions came in quick succession, so that the whole eruption was nearly synchronous, and was almost like an exanthem in its rapidity of invasion. The lesion consisted in the early stages of a firm, deep red, semi-transparent nodule the size of a split-pea, with no tendency to necrosis, but with a tendency to spread laterally to form larger and flatter patches, such as the oldest lesion, that on the forehead, now was. On pressure with a transparent glass spatula the buff-coloured, deep-seated "lupus" nodule was apparent in the middle of the anæmic skin blanched by pressure. The distribution of the nodules was very peculiar. They were numerous on the face, the forehead, cheeks, and fleshy part of the nose being the site of the most prominent nodules. These were also found on the back of the right elbow, on the front of both knees, and on the upper arm a little above the left elbow. On the knee the infiltrations were tending to spread laterally, so that a diagnosis of psoriasis had been made by a local doctor who had seen her in the earlier stages. The epitrochlear gland was greatly swollen on the right side, much less so on the left. The other glands, especially those in the neck, were also moderately enlarged. The patient had a very high, almost hectic, colour; she was well nourished, and presented no signs of tubercle, nor was there a tuberculous family history.

This form of tuberculosis of the skin is probably extremely rare—that is, if the diagnosis of tuberculosis, and not of tuberculide, is correct. The word "tuberculide" is, of course, here used in the proper

[1] *Brit. Journ. Derm.*, 1908, xx, p. 365; 1909, xxi, pp. 116 and 153; *Proc. Roy. Soc. Med.*, 1909, ii (Dermat. Sect.), pp. 1 and 91, with photographs.

historical sense ascribed to it by Darier, its inventor, to denote eruptions found in association with tuberculosis, but not demonstrably tuberculous themselves. Darier, in his recent work on dermatology, again defines the word, and differentiates tuberculide from tuberculosis of the skin, the latter class including lesions which infect guinea-pigs on inoculation, and show tubercle bacilli on examination of the diseased tissue. Tuberculides, as a rule, are more disseminated, and yet show a marked tendency to spontaneous cure. It is, of course, a moot point whether this was a case of disseminated lupus or of tuberculides; cases of the former have been reported as following measles and other specific fevers —a history which was wholly wanting in this case. But the aspect of the lesions was certainly more that of definitely tuberculous infiltration than of any of the clinical types of tuberculide. The decision can only be made by histological and bacteriological investigation, which will be undertaken in due course. (There is a picture in Hyde's "Dermatology," 8th ed., 1910, p. 631, of a generalized tuberculide, which has a certain resemblance to the aspect in this case, exception being made of the verrucous lesions seen in the picture.)

## DISCUSSION.

Dr. ADAMSON regarded this case, not as one of toxi-tuberculides, but as a true lupus vulgaris. It was of the type of multiple lupus occurring in children after measles, though the first appearance of the nodules at the age of Dr. Little's patient was unusual. The nodules were typical "apple jelly" nodules. On the knee was a patch, of the size of a sixpence, made up of a group of nodules the result of local extension. Such local spreading did not occur with toxi-tuberculides. The simplest treatment for multiple lupus, while the lesions were still small, and one which the speaker had found efficacious, was the application of salicylic acid plaster mulls.

Dr. WHITFIELD did not think the line of difference was very hard and fast. He regarded the present case as true lupus; it was not acne scrofulosorum. The term "tuberculide" had generally been applied to those forms of cutaneous tuberculosis in which the poison had arrived via the blood-stream. Most of these forms were not progressive in the skin, but in the cases of multiple lupus after measles, which were undoubtedly hæmic in origin, some of the lesions disappeared spontaneously while others progressed. As regards the presence or absence of bacilli in the non-progressive tuberculides, Thibierge and Colcott Fox had both produced tuberculosis in the guinea-pig by inoculation of material from erythema induratum, and in one of Dr. Whitfield's cases of lichen scrofulosorum inoculation of material into a guinea-pig had caused death from tuberculosis.

Dr. PERNET said that he had had a private patient with several very small nodules on the face which were distinctly tuberculous, but in her case there was pulmonary phthisis. In a case of lupus vulgaris, which had been previously X-rayed, he had found lupus growth in the hypoderm.[1]

## Case of Acute Lupus Erythematosus.

By E. G. GRAHAM LITTLE, M.D.

THE case was not quite of the clinical type of a blotchy erythematous eruption usually associated with the title of "acute," but this designation seemed to be justified by the history of the case which was confirmed by Dr. T. O. Jones, of Lewisham. The eruption commenced not earlier than the end of October, 1910, when small erythematous patches appeared on the hands. The patient was a domestic servant, aged 26, a well-developed, active girl, with no family or personal history of tubercle. Two types of lesion were present; those which had commenced earlier—namely, on the hands—were the usual dark, bluish-red, strictly circumscribed patches, with little congestion, and, except for the history, might have passed for the chronic type. The backs and several fingers of both hands were affected, as well as the front and back of wrists, and a small portion of the forearms above the wrist—a large area, therefore, for the short time during which spread had occurred. The second type of lesion was found on the face, where there was a large circinate, very congestive and raised erythematous area on each cheek, and similar congestive patches on the body and the fleshy part of the tip of the nose. The mucous membranes of mouth, nares, and vulva were unaffected, and no discharges were present in either vulva or nares.

The condition of the face vividly recalled to the exhibitor a case he had treated with Professor Gilchrist two years ago with zinc ions, with very good results, and the exhibitor was tempted to try some such local treatment here, either with ions or freezing. But he had some hesitation in doing so, in view of the rapidity of the spread of the disease and the danger of converting the circumscribed into the formidable and even deadly type clinically known as "acute lupus erythematosus." He therefore sought advice of the Section especially on the point of treatment.

[1] Pernet, "The Histology of X-rayed Lupus Vulgaris" (British Medical Association Meeting, Manchester). *Brit. Med. Journ.*, 1902, ii, p. 1319.

DISCUSSION.

Dr. PRINGLE was of the opinion that treatment by carbon-dioxide snow was not suitable for such superficial, acutely erythematous and rapidly spreading cases as that shown, although it was of immense service in cases of the "fixed type" with well-defined margins. If the patient could "carry" large doses of quinine he thought it the most generally efficacious remedy, but sometimes salicin—also in full doses—answered equally well. Simple local remedies, such as calamine lotion, were often sufficient to bring about a cure of such cases combined with internal treatment; and he had often seen good results in cases somewhat less acute from the application of tincture of iodine (*not decolorized*), which was the favourite old-fashioned remedy. He had under his care at the present time a terrible case of generalized lupus erythematosus, distinctly attributable to the very haphazard application of X-rays extending over a period of some months at a small so-called special skin hospital.

Dr. WHITFIELD recommended 10 gr. of quinine three times a day. He did not think the eruption would leave any scarring at all, as there was no loss of substance in the skin.

Dr. MACLEOD said that in his experience cases of this type did not do well with $CO_2$ snow, and there was a danger of aggravating the disease by it. He had obtained the best results with this form of treatment in cases of the discrete variety of lupus erythematosus.

Dr. PERNET said telangiectatic cases did not usually answer to $CO_2$. Benzonaphthol and other disinfectants were decidedly useful in lupus erythematosus. Salicin and quinine, in his experience, were most valuable. The various kinds of lupus erythematosus had to be dealt with on their merits.

Dr. KENNETH WILLS said he had an interesting case in which there were old erythematous patches. One new patch arose a week after he saw the patient, and he applied $CO_2$ snow to all the patches, new and old. The new lesion had gone when the patient next attended, without any scar being observable.

Dr. SEQUEIRA said he had recently an acute case in a girl, aged 15. The eruption came out very acutely like an exanthem, and there was a remittent temperature from October to late in December. There was no sign of tuberculosis. Dr. Hale White saw her in consultation, and all that could be suggested as a cause was an intestinal toxæmia. The stools were exceedingly offensive, but the *Bacillus coli* was the sole organism found in them. She was given quinine and salicin, and that was followed, at Dr. Hale White's suggestion, by intestinal antiseptics, cyllin with quinine. The eruption cleared up without scarring. A gland abscess developed, which contained stapylococci. On the advice of the surgeon she was given a staphylococcus vaccine, but he did not think that hastened the disappearance of the eruption. He ventured to suggest that in acute cases neither $CO_2$, Finsen light, X-rays, nor any irritant should be used. He had seen the affected areas get larger under the Finsen light, and appear in parts which had been fomented or poulticed on account of pain.

## Case for Diagnosis.

By E. G. Graham Little, M.D.

The exhibitor had made the diagnosis of syphilis. The case was interesting from several points of view. The patient was admitted under the care of the exhibitor's colleague, Mr. Maynard Smith, whom he had to thank for the excellent notes and for the opportunity of showing the case.

F. C., aged 42, a painter by trade, gave the following history: He had had a chancre on the glans penis fifteen years ago, the scar of which was still visible. He had had no subsequent rash or sore throat, but twelve years ago had had an empyema which was operated upon. An eruption had appeared about the middle of November, 1910, consisting partly of "blisters," which had itched considerably. Two or three weeks later an indurated sore had appeared on the under surface of the tongue, which, when seen on December 30, ten days after admission, was noted to be an ulcer with raised edges, much induration, and white base. A patchy erythematous rash was then present on the trunk and limbs, which had at first been itchy. The exhibitor saw it by Mr. Maynard Smith's invitation at this stage and made a diagnosis of hard chancre of the tongue and syphilitic roseola. The roseola had later on become partially replaced by a papulo-squamous eruption absolutely like the common syphilide of that type; the glands were generally enlarged and confirmed this diagnosis. A Wassermann test had been made on December 20 in the Inoculation Department of St. Mary's Hospital by Dr. Fleming's method, and the result was reported to be negative. It was again done at the exhibitor's request by the same method on January 4, 1911, and again a negative result was reported. The patient had apparently had no specific treatment until January 1, when he was ordered 1 gr. hydrargyrum cum creta t.d.s. He was transferred to the Skin Department on his discharge on January 6, when he presented much the same appearance as when shown to the Section on January 19. He had had no syphilitic treatment since January 6. The eruption had become more extensive or more papular in that interval. The temperature had been normal throughout.

DISCUSSION.

Dr. PRINGLE said he regarded the eruption as an indubitable syphilide in which the Wassermann reaction was delayed, possibly owing to the employment of Fleming's modification of Wassermann's original procedure. He had under his present observation a man who came to him in the beginning of August with typical secondary syphilis, and only this week for the first time did the reaction become positive. Fleming's method only had been employed throughout the progress of the disease.

Dr. PERNET said the rash was so typically a syphilide that he did not see why a Wassermann test was required at all. It showed the fallacy of this test in certain instances.

## Extensive Lupus Erythematosus associated with Ulceration.

By J. M. H. MACLEOD, M.D.

THE patient was a spare, somewhat delicate-looking married woman, aged 40, who had definite signs of active tuberculosis at the apex of the right lung. Her family history, so far as tuberculosis was concerned, was negative. Lupus erythematosus was present on her face, arms and hands. It began on the right cheek when she was aged 18, and spread gradually from there across the bridge of the nose to the other cheek, and next to the forehead and ears. It did not involve the arms and hands until she was aged 36.

When exhibited at the meeting of the Dermatological Section her condition was as follows: Ill-defined patch of lupus erythematosus of a dusky red tint, here and there covered with fine adherent scales, were present on the forehead, cheek, nose, and auricles. The lobules of the ears were typical of the disease and presented erythematous scaly patches associated with atrophy. Neither the scalp nor the mucous membrane of the mouth were attacked. On the extensor aspects of both forearms were diseased areas extending from the elbow to near the wrist. These had a scarred irregular surface owing to the presence of grafts there which had assumed a slightly keloidal aspect; these patches had ulcerated spontaneously three years ago, and as they refused to heal under ordinary local applications, had been grafted at St. Bartholomew's Hospital. On the left upper arm there was a patch about the size of the palm of the hand which was also ulcerated. Two other erythematous patches about 3 in. in diameter occurred on the back of both hands, and small pitted

patches with a rough surface were present on the extensor aspects of several of the fingers.

The special features of interest in the case were (1) the extensive distribution and marked symmetry of the lesions and their occurrence in the exact situations of erythema multiforme, suggesting a toxic cause for the affection; (2) the tendency to spontaneous ulceration of the lesions, which is comparatively rare, ulceration in this disease being more commonly the result of traumatism or unsuitable treatment; and (3) the occurrence of the skin affection in a tuberculous subject.

### DISCUSSION.

Dr. PRINGLE did not think that ulceration of lupus erythematosus patches was so rare as some people imagined. It might be due to traumatic causes in the first instance, or result from meddlesome treatment—e.g., by patent remedies.

Dr. SEQUEIRA said he had had one case of spontaneous ulceration in the extremities in a girl who was now dying of secondary epithelioma. She had had no X-rays, and though she had been under treatment seven or eight years, nothing seemed to benefit the skin condition.

Dr. DORE said he saw a case under Dr. Pringle with ulceration of the scalp. The patient had Raynaud's disease, and Dr. Pringle attributed the condition of the scalp to the wearing of a "toupet" on a metal framework.

## Imperfect Hair Growth in the Scalp of a Child aged 18 Months.

By J. M. H. MACLEOD, M.D.

THE patient was a healthy-looking girl, and was the second child of two young healthy parents, the first child being healthy. She was first seen by the exhibitor when she was a year old. At that time her scalp was bald, as were also her eyebrows, and her eyelashes were short and irregular. The scalp was not smooth, but rough like a nutmeg-grater from the presence of small horny plugs blocking the hair-follicles. It was pinkish in tinge, but there was no definite perifollicular inflammation either here or on the eyebrows. Since then an ointment containing 3 per cent. of salicylic acid had been frequently rubbed into the scalp, in consequence of which the plugs had been reduced, and there

was now an irregular crop of small downy hairs about $\frac{1}{8}$ in. in length, many of which were split at the ends over the scalp and eyebrows.

The infant was born with a crop of fine black hair on the scalp. This had been shed along with the eyebrows at the age of 2 months, and the plugging of the follicles was detected.

In addition to the peculiar condition of the scalp there was a nævoid swelling on the left side of the nose.

The diagnosis of the case presented difficulty. In some respects it resembled the cases shown by the exhibitor at the Section in December, 1907,[1] under the heading of "keratosis follicularis," and probably belonged to that category.

Dr. PRINGLE could not see any difficulty in the way of adopting the diagnosis of alopecia areata, especially as some typical stumpy hairs could be detected on the scalp. The loss of hair of the eyebrows and eyelashes as well as of the scalp was entirely confirmatory of such a view. Plugging of the hair-follicles with slight perifollicular keratosis was frequently observable as a temporary phenomenon in the earlier stages of alopecia areata, especially, he thought, in those associated with much seborrhœa of the scalp. In most cases the plugs soon fell out and the patches assumed their characteristic smooth, shiny appearance, but in exceptional instances the plugging persisted for some weeks.

## A Rare Form of Syphilitic Onychia.

By J. E. R. McDONAGH, F.R.C.S.

H. H. had a chancre on the lip two years ago, which was followed by the usual secondary symptoms. Treatment was commenced with a course of forty inunctions, then the patient took pills (1 gr. hydrargyrum cum creta ter die) for eighteen months, and ended up with fifteen injections of grey oil. The injections were given owing to a spreading ulcer on the nasal septum, and it was because of its resistance to treatment that the patient was advised to have an injection of "606." The patient was first seen in November, 1910, when he was found to have a perforation of the nasal septum, the edges of which were ulcerated, and from which, in the course of the day, a great deal of discharge exuded.

Besides a scar from a patch of lupus vulgaris on the left side of the neck, which was cured five years ago by means of Finsen light, and an

[1] *Proceedings*, 1908, i, p. 27.

interesting condition of the nails, nothing abnormal was discovered. Wassermann's reaction was positive. The patient had always had bad nails from the evil habit of biting them, but a few months after the infection the nails of both the hands and feet became red and raised, but not painful, and within a short period every nail fell off, and the new nail which replaced it was much shorter, more uneven, and fluted. The nails were quite soft, and yielded to the slightest pressure; they were split at their free ends and concave in the centre; the surface was uneven owing to the presence of longitudinal ridges, which were especially marked towards the free end of the nail. There were no lunulæ, and the skin over the root of the nail had a puffed-out appearance, which gave way under the slightest pressure, owing to the nail-root being so soft.

As a result of the injection of "606" the nasal trouble healed up, and within six weeks the Wassermann's reaction had become negative, but no appreciable change had taken place in the nails.

The exhibitor had at the same time another somewhat similar case, which it is hoped will form a special article for the *British Journal of Dermatology*.

A photograph, kindly taken and lent by Dr. H. G. Adamson, was exhibited.

Dr. PRINGLE was able to recall to memory a small number of nails identical with those exhibited, and he felt fairly certain that they were not necessarily associated with syphilis. The simultaneous occurrence of two such cases in syphilitic patients in Mr. McDonagh's practice was, however, cogent evidence that the syphilitic poison was one of the toxins which could bring about the condition.

## Case of Elephantiasis of the Lip.

By J. H. SEQUEIRA, M.D.

M. S., A WELL-DEVELOPED girl, aged 17, was admitted to the London Hospital under Dr. Theodore Thompson, who kindly transferred the patient to the care of the exhibitor. There was a history of tuberculosis on the mother's side, but the patient's immediate family were all in good health. She had suffered from measles at the age of 10, from rheumatic fever at the age of 11, and from left facial paralysis at the age of 13. Four years ago—i.e., immediately after the facial paralysis—

there was an acute inflammatory swelling of the lower lip. The attack, which resembled erysipelas, necessitated her being kept in bed for twelve days. The swelling subsided somewhat, but an acute outbreak occurred from time to time, leaving the lip chronically swollen.

The patient was a healthy-looking and intelligent girl. Her lower lip was much swollen, and red and everted, showing a large amount of the mucous surface. The swelling extended from one labial commissure to the other. The surface was cracked in the centre and the crack sometimes bled. The swelling was soft to palpation and pitted on pressure. Pain and tenderness were absent except in the acute attacks. The upper incisor teeth protruded considerably in front of the lower incisors, and it appeared probable that this protusion caused slight injuries to the mucous surface, whence the parts became infected. The patient complained of headaches, the knee-jerks were exaggerated, and there was some anæsthesia of the palate. There was slight ptosis of the left eyelid, the result, doubtless, of the old Bell's paralysis. The catamenia were regular, but the first erysipelatous attack appeared at the time of the onset of menstruation. While the patient was in the hospital an acute erysipelatous attack developed; the lip presented a number of small ulcers which tended to bleed. The surface was painted regularly with a solution of nitrate of silver gr. x, spt. ætheris nitrosi ʒvij, aq. destillat. ʒj. This application rapidly healed all the breaches of surface. The X-rays were tried with a view of diminishing the swelling, but without any appreciable benefit. These recurrent attacks of erysipelatous inflammation being believed to be due streptococcal infection, vaccines were tried, but without improvement.

The lip having now become chronically enlarged, Dr. Sequeira asked his colleague Mr. Milne to see the patient with a view to operation for the removal of the deformity. Mr. Milne proposed to attempt to drain the area by silk threads passed from the outer ends of the swelling to the neighbourhood of the submaxillary lymphatic glands, as used by Mr. Sampson Handley in cases of malignant disease.

## DISCUSSION.

Dr. PRINGLE said he thought Sampson Handley's method of lymphatic drainage was well worth trying, but the best way to get rid of the condition would probably be to make a new surface altogether by surgical procedures, and thus get rid of the persistent fissures which were the presumptive points of entry of the streptococci.

Dr. PERNET reminded members that the late Dr. Radcliffe Crocker and he had brought a case before the old Dermatological Society of London. The patient was an adult woman and the appearances corresponded somewhat with the present one. They had excluded ordinary specific hypertrophied lip. Some good was done by local injections of thiosinamine. It was painful, but there was some improvement, the patient being pleased with the result. As X-rays had not answered, that might perhaps be tried in the present case.

## Case of Adenoma Sebaceum (Pringle Type).

By J. H. SEQUEIRA, M.D.

THE patient, a young woman, aged 23, said that the skin had been affected since she was 10 years of age. She was an intelligent woman, in good general health. There were numerous pinhead to millet-seed sized, bright red, hard papules scattered over both cheeks in the neighbourhood of the naso-labial sulci. The patient stated that two or three small spots had appeared recently. She had numerous small, pigmented moles on the limbs and elsewhere, but no other congenital anomalies. As already mentioned, her intelligence was quite up to the average. The patient had only been seen that morning, and no biopsy had been made.

# Dermatological Section.

February 16, 1911.

Dr. T. COLCOTT FOX, President of the Section, in the Chair.

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## Case of Unilateral Pigmentary Nævus.

By H. G. ADAMSON, M.D.

THE patient was a young woman, aged 18, who was under the care of Dr. Woodwark for heart trouble. The pigmentation was in the form of split-pea-sized, deep brown macules, thickly sprinkled over the side of the trunk from the level of the nipple to the crest of the ilium behind, and to the inguinal fold in front. The area occupied by the pigmentary macules was strictly limited by the middle line in front and behind. There were no fibrous nodules suggestive of Recklinghausen's disease. The macules, according to the patient's account, had been present only a few years, but there was another feature—namely, a supernumerary nipple on the right side, which suggested that the pigmentation was also a congenital defect. Although not, strictly speaking, linear in distribution, the case should be grouped, the exhibitor thought, with nævi of the type of unilateral linear nævus. It was now known that nævi of this type might consist of any one, or more than one, of the elements of the epidermis or its appendages—for example, it might be, as commonly, made up of horny cells; it might be entirely of sebaceous glands, or of sweat-glands; it might be, as in the present case, pigment only.

### DISCUSSION.

Dr. F. PARKES WEBER said the larger patches of cutaneous pigmentation looked exactly like those of Recklinghausen's disease, though the distribution of the pigmentation was unilateral.[1]

[1] In regard to the possibility of the case being a localized and incomplete form of Recklinghausen's disease, it must be remembered that the distribution of neurofibromatosis may be to a certain extent unilateral, one half of the tongue or one half of a lip being affected.

Dr. GRAHAM LITTLE thought this case the counterpart of the case shown by Dr. Parkes Weber, and figured in the *British Journal of Dermatology*,[1] but shown to the Dermatological Society of London in May, 1905. There was the same twofold pigmentation in smaller and darker spots, and larger, less dark patches. The possibility of Dr. Weber's case being one of early and incomplete Recklinghausen's disease was discussed when it was shown, and the chief difference in the two cases was the unilateral distribution of the present case. That pigmentation could precede the development of tumours in Recklinghausen's disease by many years was exemplified in a case shown by Dr. Little,[2] in which the patient, a boy, aged 12, had had pigmented areas since birth, and had developed molluscous tumours only at the age of 10, the pigmentation having also increased in the interval.

## Case of Purpura.

By G. W. DAWSON, F.R.C.S.I.

(For L. F. KNUTHSEN, M.D.)

THE patient was a man, aged 30. A rash appeared on the arms and legs several weeks ago. The exhibitor considered the case one of purpura, the most prominent lesion being hæmorrhage into the cutis. There were, however, certain parts of the eruption presenting indefinite papules, which to some present suggested lichen planus of a hæmorrhagic type. There was no itching or other subjective symptom.

## Case for Diagnosis.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a Rhodesian farmer, who had lived continuously in Africa for sixteen years, the last twelve of which he had spent in Rhodesia. His home was on the north-west border, about one hundred miles from the Victoria Falls. He had, on the whole, enjoyed splendid health, and was now a very fine specimen of young manhood, in spite of attacks of blackwater fever. He was aged 29, originally a native of Russia, and of Hebrew race. Fifteen months ago, while still in Rhodesia, he noticed an eruption on the glans penis, consisting

[1] *Brit. Journ. Derm.*, 1909, xxi, p. 50.
[2] *Brit. Journ. Derm.*, 1908, xx, p. 413.

apparently of small papules, which had persisted continuously up to the present time. He came to Europe six months ago, and in Vienna consulted Professor Müller, of the Venereal Hospital, as he had been told by some other doctors that he had syphilis. A careful examination was made in Vienna by Wassermann's original test, as well as by modifications of it, and the result was recorded as negative, Professor Müller informing him that it was not advisable to undertake a course of syphilitic treatment. About this time—i.e., some three months after arriving in Europe—he noticed, in addition to the eruption on the penis, which persisted unchanged, some faint ringed patches on his chest. He complained at the same time of a sore throat and a cold in the nose, with some epistaxis. He was sent to the exhibitor on January 2, 1911, by Dr. Garlick, of Gordon Square. He had at this time a number of faintly pink-edged, large circinate patches on the chest and abdomen, the areas varying in diameter from 1 in. to 4 in., the edges raised, congested, not scaly, the redness being easily obliterated by pressure. There was no itching complained of in these patches, and, except for seeing them, he was unaware of their existence. Factitious urticaria was very well marked. On the penis there was a serpiginous-outlined papulo-squamous eruption running round three-quarters of the glans. The glands in the neck were definitely enlarged, and the patient felt run-down, easily tired, and depressed. The exhibitor at this visit thought the diagnosis of syphilis most probable, in spite of the negative result of the Wassermann test. He regarded the circinate rash as a possible "roséole tardive" of French authors; indeed, it strongly recalled the plate in Jacobi's "Atlas" with that label. A Wassermann test was again made by Dr. Fleming, using his own modification of that test, and the result was reported to be negative. The view was then taken that the eruption might be a circinate erythema, as described by Colcott Fox. There was no nasal catarrh at this time, and his voice was unaltered. His temperature on January 2, taken during the consultation, was 99° F., his pulse 100, and his blood-pressure, measured by Leonard Hill's instrument, 80. He was given a mixture of calc. phosph. and calc. lact., 15 gr. of each, three times a day after meals, and a salicylic acid ointment to apply to the penis. He was seen again on February 16; the circinate lesions had, if anything, become more vivid in colour, but were still quite pale pink, with very little-raised margins; the penile lesion had greatly diminished, and his general health and feelings were much improved. The possibility of leprosy was now entertained by the exhibitor, and the patient was closely questioned as to the liability

of contagion. He said the disease was constant amongst the natives in his locality, but not amongst the whites; that he had never come into contact with patients suffering from it. He was quite out of the zone of sleeping sickness (which is attended by a transient eruption not unlike that now present in the patient). He had again contracted a severe cold, and was suffering from nasal and laryngeal catarrh. Careful testing of the tactile and thermal sensation in the areas of the eruption showed no paræsthesiæ or anæsthesiæ. The ulnar nerves above the elbow on both sides, but perhaps more markedly on the left, were, it seemed to the exhibitor, definitely thickened: they could be handled somewhat energetically without producing any pain. There were no lesions in the mouth.

The patient was returning to Rhodesia on February 18, and he was engaged to be married in the near future. He had never had syphilis to his knowledge, and had not any appearance of scarring from a chancre, or history of secondary eruption. He lived a healthy, out-door life on a cattle ranch in a country with a magnificent climate, and had not been nearly as well in Europe as in Africa.

The provisional diagnosis of leprosy was hazarded by the exhibitor in spite of the absence of anæsthesia. An extremely interesting case, in which a diagnosis of syphilis had been maintained for five years by numerous eminent specialists, and which eventually was demonstrated to be leprous, was recorded by Audry.[1] Here also there was no anæsthesia. Other cases were on record in which anæsthesia was delayed in cases ultimately demonstrated to be leprous.

Subsequently to the meeting this man had been examined by Sir A. Wright, who found no evidence of leprosy in the discharge from the nasal cavity. The patient had refused a biopsy, and no other investigations could be carried out.

## DISCUSSION.

Sir MALCOLM MORRIS regarded the case as sufficiently suspicious to justify the idea that it was commencing leprosy. If the case could be seen somewhat later, and a biopsy made, it would perhaps settle the diagnosis. It was not yet far enough advanced to do that. The case looked very much like one he saw at St. Mary's Hospital. In that also there was absence of anæsthesia at that stage, but it came later. Even at that early stage there was some enlargement of the ulnar nerve, as in this patient. In the Bergen Leprosy Congress great stress was laid on the early involvement of the nasal mucous membrane.

[1] *Ann. de Derm. et de Syph.*, Par., 1910, 5me sér., i, p. 274.

Mr. DAWSON agreed that it was probably an early case of leprosy, a disease which was common in the Transvaal.

Dr. STOWERS agreed that the case was suspiciously like early leprosy, but suggested that the possibility of mycosis fungoides should be borne in mind.

The PRESIDENT remarked that if the case was syphilitic it would be an example of one of the late circinate eruptions, such as Unna had described. The nasal catarrh was noticeable, and one should remember how often leprosy began in the nose. With regard to marriage, he had known lepers in this country who had lived with their wives for years without the latter getting the disease.

Dr. PERNET considered a case of this kind required careful investigation, but it was suspiciously like leprosy. He had seen somewhat similar cases which turned out to be certainly leprosy. In a case of so-called neuro-lepride, he had found lepra bacilli.[1] Alterations of sensation were not necessarily present in early cases. The serum of a lesion should be examined, and a biopsy should be made. An important feature was that the condition began on the penis. Glück,[2] of Serajevo, had spoken specially on the subject. The case also raised the question as to the segregation of lepers.

Dr. MACLEOD said that he agreed that there was a difference in the thickness of the right and left ulnar nerve, the right one being distinctly thicker, and considered that the eruption was suspiciously like lepra, but that in the absence of sensory disturbances within the ringed lesions it was difficult to come to a definite decision with regard to the diagnosis. He did not think that much assistance would be derived from a biopsy, as it was doubtful if lepra bacilli occurred in such lesions, and the histo-pathology was not characteristic. He suggested a further examination of the nasal mucosa for the bacilli, particularly after some iodide of potassium had been given to increase the discharge.

Dr. WILFRID WARDE said that while he was at Dr. Unna's clinique he saw exactly similar cases. Unna said they were cases of leprosy of the nerves, and that often no bacilli could be recovered from the patch. He (Dr. Warde) did not think that generalization was strictly true. He had seen a case from Brazil, in which there was a round patch and a very thick nerve. It was so important that a diagnosis should be made that a piece of ulnar nerve was excised, and then a small worm was found; he saw it mounted, and it was a very beautiful specimen. No zoologist in Hamburg knew what it was. The enlargement was bilateral. Possibly a piece of the present patient's nerve might be excised.

Dr. GRAHAM LITTLE, in reply, thanked members for their opinions. Further investigations were, however, out of the question, as the patient would be returning home in three days.

[1] *Brit. Journ. Derm.*, 1900, xii, p. 450. Dr. Pernet had suggested the case he examined was really a flat infiltration (*en nappe*). Darier had found bacilli in neuro-leprides (cited Jeanselme, "Dermatologie Exotique," Par., 1903, p. 24).

[2] Glück, "Zur Kenntniss der leprösen Affektionen an der Glans Penis," *Lepra*, Leipz., Lond., Par., i, 1900, p. 4.

## Case of Nævus Pigmentosus, Verrucosus et Pilosus.

By E. G. Graham Little, M.D.

The patient was a boy, aged 2, and the condition was congenital. He presented a most remarkable appearance, as will be evident from the following description. The whole of the trunk (with the exception of a small area under the left axilla) was occupied by a pigmented nævus, which stretched behind from the nape of the neck to the middle of the sacrum and in front from the neck to the pubic region. On the upper part of the back there were large warty areas superposed on the pigmented skin, and the whole of the back and sides of the trunk were covered with long hair; the pigmented portion on the abdomen was not hairy or warty; only a small portion of the skin over the left side of the chest and under the left axilla was not affected. The right shoulder and the right upper arm were also covered entirely with a hairy, warty, and pigmented nævus, continuous with the pigmented areas of the back; below the elbow the skin was normal, but with numerous small, discrete, rounded nævi; on the back of the wrist there was another hairy, slightly raised, pigmented area the size of a florin. The backs and fronts of the hands were normal. The face was thickly peppered with small, discrete, warty, and flat nævi; on the forehead there was a large hairy nævus contiguous and shading into the scalp, which was elsewhere unaffected. Small, rounded, warty and pigmented nævi were thickly scattered over the thighs and legs down to, and including, the dorsum of the feet; the soles were unaffected. There was a large, raised, hairy, pigmented patch about 2 in. by 1½ in. in diameter on the front of the right leg just above the ankle. The left ankle was tuberculous. There were six other children, who showed no similar lesions. There was no family history of congenital malformations.

## Two Cases of Nævus Unius Lateris.

By E. G. Graham Little, M.D.

These cases served as remarkable companion pictures, the lesions being on similar portions of the body but on different sides. The first case was in a girl, E. O., aged 12. The condition had been present from birth. There was a linear streak starting from just in front of the lower lobe of the right ear, and pursuing a somewhat zig-zag course, roughly corresponding to the anterior border of the sterno-mastoid

muscle, and terminating about an inch above its insertion into the sternum (fig. 1). The line was irregular in thickness; starting narrow, it bulged into an oblong or fusiform broader area in the middle of its course, and again became thinner at its termination. The line was made up of salient, warty, pigmented, discrete nævi, except in the broader middle area, where a uniform elevated pigmented mass was present. This portion had been treated with freezing by carbon dioxide snow, with good result, for the pigmented warty mass had been dislodged, leaving very little cicatrix. It was, however, a very tedious

FIG. 1. FIG. 2.

Two cases of nævus unius lateris.

procedure; exposures had averaged from thirty to sixty seconds, and had been repeated about ten or twelve times. With the exception of a very small isolated, warty, pigmented growth on the lower lobe of the right ear the distribution was confined to the neck. There was no other member of the family similarly affected.

The second case was in a boy, R. W., aged 11, a small child for his age. He had a congenital linear nævus extending downwards from behind the lower lobe of the left ear, along the anterior border of the sterno-mastoid to a point about 1 in. above the clavicle (fig. 2); along this course the streak was made up of warty pigmented nævi, with

varying degrees of breadth. In the supraclavicular fossa there was a non-pigmented, flat warty patch with a few discrete, flat, non-pigmented wart-like nævi running down on the chest in a line about 1 in. below the clavicle. On the left cheek there was a large patch of non-pigmented, flat warty growth, about 1½ in. by 2½ in., the longer dimension being vertical, and the whole patch separated by about 1½ in. from the external ear. There were several isolated warty nævi, some of them pigmented on the pinna, in the concha, and around the meatus of the left ear.

There was a small, isolated patch of congenital alopecia, about ¾ in. in diameter, on the scalp in the vertical line of the left ear and about 2 in. above the pinna. The distribution of the portion of the nævus confined to the neck in both these cases offers a great resemblance to part of the area described by Head[1] as the sterno-mastoid area in the following terms: "The descending portion of the (sterno-mastoid) area lies over the sterno-mastoid and almost exactly follows the anterior border of this muscle. On the front of the chest it reaches the upper border of the second rib." In the further description of this area on p. 378 of the same paper the author says: "It is noteworthy that the area always sends a small anterior portion to a point on the cheek just below the ear." This *may* correspond perhaps to the patch of nævoid tissue seen on the cheek in the second case noted above, although this patch was certainly higher on the cheek than would coincide with the description of the herpetic eruption which served to indicate this area in Head's narrative (*see* fig. 22, p. 378, loc cit.). The patch of alopecia on the scalp noted in the second case was unique in the exhibitor's experience in connexion with this grouping of linear nævi.

## DISCUSSION.

Dr. STOWERS referred to a very much more marked case of the same kind, which he showed in 1907, and published in detail under the title of "Congenital Ichthyosis Hystrix Linearis syn. Nævus Verrucosus," in the *British Journal of Dermatology*,[2] with illustrations. The extent and symmetry of the disease were very remarkable. Several of the growths were so considerable, projecting from the surface to an extent exceeding ½ in., that excision was necessary.

Dr. PRINGLE suggested that the best way of treating so narrow a linear nævus was by excision. The result was rapid, and there need be little or no scarring. In such cases as that of pigmented nævi, there were often patches of hair, not only bilateral, but remarkably symmetrical.

[1] "Disturbances of Sensation and the Pain of Visceral Disease," *Brain*, 1894, p. 368.

[2] *Brit. Journ. Derm.*, 1908, xx, p. 1.

## Small-spored Ringworm of the Scalp in a Woman aged 23.

By J. M. H. MACLEOD, M.D.

THE patient had been infected from her son, a boy, aged 6, who suffered from the disease. She was a strong-looking young woman, with thick, rather coarse black hair. Her scalp appeared to be otherwise healthy, was not scurfy, and she had never had ringworm before. On the left frontal area, about 1 in. behind the anterior border of the scalp, there was a small, partially bald patch about the size of a shilling. Over this were a few irregular stumps, which, on being examined under the microscope, presented the typical appearances of microsporon ringworm. She had first noticed the lesion about two months ago.

DISCUSSION.

The PRESIDENT remarked that he had only seen a few similar cases, and that, considering the prevalence of microsporon ringworm, it was certainly rare to see an adult affected.

Dr. PRINGLE said he remembered having seen only three cases of small-spored ringworm in the scalp in adults. One was a lady, aged 45, and in her the disease began as a circinate eruption on the forehead, spreading into the scalp. The second was a young nursery-maid who contracted it from children under her care; and the third was a very old woman, about 80 years of age, who was almost completely bald, also attending to children with ordinary London ringworm.

## Non-ulcerating Tuberculide, (?) Boeck's Miliary Sarcoid, following Lupus Vulgaris.

By J. H. SEQUEIRA, M.D.

THE patient had been previously shown at the meeting of the Section on January 20, 1910.[1] The patient was aged 21. He had suffered from lupus vulgaris since he was 9 years old. The skin of the nose and both cheeks had been extensively affected, and he had been submitted to four scraping operations before he came under Dr. Sequeira's care. The lupus was of a warty type, and after a preliminary curetting the areas were submitted to the Finsen light with good results. Occasionally the patient came up for inspection from Suffolk, and in May, 1909, he was found to have a number of small shotty swellings behind both ears and on the adjacent parts

[1] *Proceedings*, 1910, iii, p. 52.

of the neck and forehead. The nodules have persisted, and there were still about forty of them present when the patient was again shown. The condition had not changed in the least, and none of the nodules had ulcerated. A few on the forehead had disappeared, leaving small depressed cicatrices. The nodules were hemispherical in shape, of a purplish-brown colour, and about 2 mm. in diameter. They felt exactly like shot embedded in the cutis.

Dr. Sequeira quoted the report which Dr. Turnbull had made of their structure. The nodule was limited to the dermis, and lay at the base of a hair-follicle. Its stroma consisted of a reticulum of fine fibrils, with spindle and elongated nuclei. In the central parts the nuclei were very abundant. The reticulum contained capillaries, and was densely infiltrated with free cells, most of them being lymphocytes, but there were also eosinophile polymorphonuclear leucocytes. There was some extracellular pigment. In the upper part of the nodule there was a rounded space containing concentric lamellæ of horny substance, bounded by one or two layers of flattened epithelium. No giant-cells were found, and no tubercle bacilli.

The symmetrical arrangement of the nodules and the absence of peripheral extension excluded lupus vulgaris, and the exhibitor, therefore, concluded that the eruption was a tuberculide. However, the fact that there had been no ulceration during twenty months showed that the eruption was not one of the common forms of tuberculide, but resembled the condition described by Boeck as "miliary sarcoid."

The exhibitor regretted that it had been impossible to carry out the suggestion made by Dr. Pringle in January, 1910—viz., to excise a nodule and inoculate a guinea-pig with the material. The patient gave the von Pirquet reaction, but this was of no assistance, as he was already suffering from lupus vulgaris.

## DISCUSSION.

THE PRESIDENT said that very few cases of tuberculides produced tuberculosis when inoculated. The eruption had not the distributon of acne varioliformis.

Dr. GRAHAM LITTLE asked why this was not an example of sarcoids, if that term were to be accepted. He did not think the clinical aspect was that of any described form of tuberculide.

Sir MALCOLM MORRIS remarked that it would have been interesting to learn what the diagnosis would have been if there had been no lupus in the case and only the nodules had been seen. In those circumstances he did not think that a tuberculide would have been suspected.

# Dermatological Section.

March 16, 1911.

Dr. T. COLCOTT FOX, President of the Section, in the Chair.

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## Two Cases of Adenoma Sebaceum in Mother and Son.

By H. G. ADAMSON, M.D.

IN the mother, aged 31, the lesions dated from birth, though they had increased in size. They were typical lesions of the Pringle type—hemp-seed-sized, smooth, oval, yellowish, with a network of fine vessels giving them a red tinge, and situated on the cheeks at either side of the nose. There was much diffuse telangiectasis of the cheeks and nose.

The son, now aged 5, showed red spots on the cheeks and sides of the nose when 4 years old. They were now pin-head-sized, and were gradually getting larger. The yellow colour, seen on pressure, was marked by telangiectases. On the forehead there was a flat, irregular swelling, probably a soft mole. The boy's body was covered with numerous small whitish elevations, looking like plane warts, but soft to the touch. Some were apparently lobulated, suggestive of a sebaceous gland origin, though their nature could not be determined without microscopical examination, to which the mother would not consent. There were also about half a dozen finger-nail-sized oval leucodermic patches about the trunk.

The boy's elder brother, aged 8, had no skin lesions. The mother and child seemed to be of normal intelligence, and there was no history of epilepsy in the family.

The cases were of interest because they were in mother and child, which was, the exhibitor thought, an unusual occurrence.[1] Also on account of the multiple small elevations on the boy's body.

[1] Since these cases were shown the exhibitor has found a note by Dr. Stopford Taylor and Dr. Barendt on "Three Cases of Adenoma Sebaceum in One Family," *Brit. Journ. Derm.*, 1893, v, p. 360.

Dr. GALLOWAY inquired whether a more satisfactory treatment than electrolysis had been suggested for this condition. This was a very wearisome and painful procedure, and produced very little good result in such cases. A doctor had brought his son, a bright, intelligent lad of about 14, to him with well-marked adenoma sebaceum. The father had treated the boy by means of electrolysis, but with little or no improvement. Dr. Galloway suggested in this case the use of solid carbon dioxide, and the boy was now undergoing treatment by his father by this method. He hoped the results would be more satisfactory.

## Case for Diagnosis.

By S. E. DORE, M.D.

THE patient was a man, aged 41, who had suffered from a lesion in the right groin, which from time to time had ulcerated in part of its extent during the past fourteen months. The lesion was situated just above and parallel to Poupart's ligament, and consisted of an oval patch of a reddish-brown colour about 3 in. long and ½ in. wide in its greatest diameter. The surface was smooth, and apparently uniform in colour, but on stretching the skin some rounded whiter areas could be discerned at the inner part. At the outer extremity there had been an ulcer about ½ in. in length; this had recently healed under iodide of potassium, but it had healed several times previously without treatment.

The patient had contracted syphilis twenty-one years ago, and the exhibitor at first regarded the lesion as a late syphilitic manifestation, but the recent appearance of what seemed to be an initial lesion resembling a lupous nodule led him to regard it as tuberculous. Another recent phenomenon was the appearance of distinct infiltration at the lower and outer part of the patch. Wassermann's test had not been carried out on account of the previous history of syphilis.

### DISCUSSION.

Dr. PRINGLE thought that the lesion was probably a relapse syphilide *in loco*, and suggested that a Wassermann test should be made. If positive, it was evidence that patient still had active syphilis, even after so long an interval, and he would be inclined to act on the result of the test.

Dr. WHITFIELD said that three diseases had occurred to him—namely, Paget's disease, morphœa, and syphilis. Close examination convinced him that

it was not the first, and on the whole he thought it most probable that it was a patch of morphœa. Ulceration was not uncommon if a patch of morphœa was irritated.

Sir MALCOLM MORRIS agreed with Dr. Whitfield that it was more like morphœa.

Dr. PERNET expressed the view that the condition was syphilitic.

## Monilithrix in a Male Child aged 16 Months.

By S. E. DORE, M.D.

AN older member of the family, suffering from the same disease, who was shown at the April meeting of the Dermatological Section, 1910,[1] was also brought to the meeting. When the latter was exhibited a year ago the scalp of the child now presented was apparently normal. The mother dated the condition from four or five months of age, when she first noticed that the hair at the back and sides of the child's head was not growing properly. The disease in the present case resembled that of the older child as regards its distribution and the appearance of the hairs, but differed from it in the slight degree of keratosis of the mouths of the hair-follicles, which was concurrent with the growth of moniliform hairs, and had not preceded it, as in the other case. This child was born at full term, the elder brother prematurely. Both suffered from rickets. Microscopical specimens showed the fusiform nodes or spindles alternating with constrictions at more or less regular intervals, according to the degree to which the hairs were affected. In unstained specimens the cuticle was seen to be thickened at the internodes, which presented the usual brush-like extremity on fracture, but there did not appear to be a deficiency of pigment in this position, nor an increase of that at the nodes. Many of the latter, however, showed a deeply pigmented fusiform medulla which was absent altogether in the constricted portions.

Dr. GALLOWAY said that he had had at one time two cases of monilithrix occurring in brothers under observation for some years. The other children of the family were unaffected. As the boys grew older the affection of the scalp became less obvious, as the unaffected hairs grew and covered over the shorter fragile hairs affected by the disease. He gained the impression that the originally affected hairs did not recover.

[1] *Proceedings*, 1910, iii, p. 85.

## Ichthyosis in a Child aged 16 Months, treated by Thyroid Extract.

By T Colcott Fox, M.B.

A remarkable amelioration had occurred by the local application of glycerine and water, and the ingestion of ½ gr. of thyroid extract, at first twice daily and later thrice daily. He could not help thinking a great deal of the improvement was due to the thyroid extract. He could not detect any thyroid gland in the child. His object in exhibiting the child was to elicit the experience of the Section in the treatment of ichthyosis by thyroid extract. His own experience had been favourable, and others had reported satisfactory results.

He pointed out the desirability of investigating the condition of the thyroid glands in such cases when opportunity arose. The cases in which the condition had been reported were very scanty. In a *Thèse de Lyon* by Paul Rion (1908), the author reported that in sixty cases of fœtal ichthyosis, in which an autopsy was made, the state of the thyroid gland was only mentioned three times; in one it was found healthy, in one totally absent, and in a third altered by sclerosis. Of its state in common ichthyosis we know practically nothing by autopsy, but in six cases the thyroid gland could not be detected, and in four cases the patients had goitre.

### DISCUSSION.

Dr. Pringle said he was familiar with the case of ichthyosis reported by Winfield, in which the thyroid was found to be absent; he thought, however, that such an occurrence must be very inconstant. He was able to confirm the President's experience of the extraordinary improvement of such cases under thyroid feeding, and was, on the whole, surprised at the amount of thyroid gland substance which even young children could often take with advantage.

Sir Malcolm Morris remarked that young children bore thyroid very well for other conditions also. He had been administering it in small doses to young children for persistent acute eczema, and recently he read of it being given by others for the same disease, and with equally good result.

Dr. Galloway said that the President would no doubt remember various reports, and, among others, a thesis for the M.D. of Glasgow by Dr. Don on the treatment of skin diseases by thyroid extract. These reports were issued in the earlier days of the use of thyroid extract in the treatment of myxœdema. Many of the cases treated were cases of ichthyosis, and occasionally with some

benefit. He regarded the absence of the thyroid as quite an inconstant feature in cases of ichthyosis, and it was often very difficult to tell on palpation whether the thyroid gland was diminished in size or not. It was, however, quite possible that the function of the thyroid gland might be diminished, and in these cases no doubt the administration of thyroid extract would prove beneficial.

Dr. SEQUEIRA did not remember to have seen such xerodermia in cretins. That should be the case if the idea which had been expressed were correct.

Dr. PERNET reminded members that the late Dr. Radcliffe-Crocker and he had given, for some time past, thyroid extract in cases of ichthyosis. The treatment was mentioned in the third edition of Radcliffe-Crocker's work.

Dr. MACLEOD said that he had treated several cases of ichthyosis in young children with thyroid extract with marked benefit. He found that great care had to be exercised in regard to the dosage, and referred to one unfortunate experience where severe tachycardia was produced in a boy, aged 6, suffering from mild ichthyosis, by doses of 1 gr. daily.

## Case for Diagnosis.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a chemist's assistant, aged 37, living in Cardiff, who had been sent to the exhibitor for treatment by Dr. Pine, of that city. He had, when first seen, a very extensive and quite scaly, ringed eruption covering the shoulders, arms, chest, thighs, and buttocks; there was very much itching as well. The face and scalp were free. The rings were about the size of a shilling, and the borders elevated and scaly, the central skin not apparently much altered. The eruption had lasted for three months. He had been treated with one application of sulphur ointment some weeks ago, under the supposition that he had scabies, and he had suffered so much discomfort from the one application that he had changed his doctor, and was now under the care of Dr. Pine. The man had had syphilis thirteen years ago, and had had treatment for three years with mercury and iodides; he had three children since, all of them quite free from syphilitic taint.

The exhibitor had formed the opinion that it was a case of pityriasis rosea, but had been doubtful of the diagnosis because of the duration of the eruption—full activity after a lapse of three months being, in his experience, very uncommon—because of the excessive scaling and the degree of itching, which was extremely severe.

## Nævi of peculiar appearance in a Girl aged 12.

By E. G. Graham Little, M.D.

The mother stated that the child was born quite free from eruption of any kind; this had begun to appear at the age of about 8 or 9 months. The distribution and appearance at the present time was as follows:—

On the right side of the neck, over the front border of the sterno-mastoid, there was a small group of pink, flattened, and in some cases scratched papules. On the inner side of the left arm, running down in a straight line from the elbow to the wrist along the free edge of the ulna, there was a similar collection of papules, pink and inflammatory. On the outer edge of the right chest, at a point about midway between axilla and iliac crest, there was a similar small group of papules covering an area about the size of a florin. On the front of the thigh there was an area the size of the palm of the hand, immediately below Poupart's ligament, covered with very numerous horizontal and vertical lines of papules running down on the thigh for a distance of about 6 in., the lines intersecting in parts to form a meshwork. The papules were pink, some excoriated, and at first sight rather like lichen planus. A single line starting from the network on the upper part of the thigh was continued with intermissions down the thigh to the level of the calf of the leg, and here for the first time the line became slightly flecked with brown pigment. The curiously inflammatory aspect of the lesions, their restriction to the right side, and the multiplicity of sites affected, were points of interest in this case. The onset of the lesion so many months after birth, if the history could be relied on, was also peculiar.

## Keloids forming on the Cicatrices resulting from Ulcerating Syphilitic Lesions.

By J. M. H. MacLeod, M.D.

The patient was a labourer, aged 31, who had contracted syphilis twelve years ago. Five years ago, while serving in the Army in Sierra Leone, ulcerated, crusted syphilides had appeared on his arms and

buttocks, on account of which he was taken into hospital and treated for six months with injections of mercury. On being discharged he was kept under supervision and treatment for about two years. At the time of exhibition he had a number of raised brownish patches, irregular in outline, with a prominent border, and varying in size up to 3 in. or 4 in. in diameter, situated on the arms, trunk, buttocks, and legs. In addition to these lesions, a number of small cicatrices, about the size of a sixpence, white, pitted, and tissue-paper-like, were present on the left buttock and arm. On several of those on the arm were small red keloidal thickenings. The patient was unable to tell when those first appeared, as he had not noticed them until they were pointed out to him by the exhibitor. On the front of his chest an elaborate design in red and blue had been tattooed, and here and there fibrous thickenings were present on the red marks.

## DISCUSSION.

The PRESIDENT (Dr. T. Colcott Fox) said it was a nice point in the case as to whether the condition was true keloid or hypertrophic scar-tissue. In his own experience the multiple hypertrophic scars of a generalized syphilide tended to resolve spontaneously, and were not true keloids.

Dr. PERNET said he regarded the case as one of hypertrophic scarring, not as true keloid. He had now seen a number of cases of hypertrophied scarring in syphilis. It was the result of secondary staphylococcal infection.

Mr. MCDONAGH said he showed a case before the Section with keloids all over the body, many of which had disappeared spontaneously.

Dr. GRAHAM LITTLE recalled a case shown by Mr. Arthur Shillitoe to the Dermatological Society of Great Britain in 1903,[1] in which the patient, a man of middle age, had developed hundreds of apparently keloid growths on the site of rupial sores. The tumour was the size of a Barcelona nut. Dr. Little had obtained a section from one of these, and found histologically the appearances characteristic of scar-keloid, namely, thinned epidermis, obliteration of the glands and hair-follicles, and immediately below the epidermis masses of fibrous tissue arranged in bundles parallel with the line of the epidermis. Nevertheless, this case had also spontaneously recovered, the tumours all disappearing some months later.

[1] *Trans. Derm. Soc. Great Brit. and Irel.*, 1902-3, ix, p. 86.

## Case of Congenital Xanthoma (Endothelioma).

By J. E. R. McDonagh, F.R.C.S.

D. H., A GIRL, aged 5 months, the first and only child, was brought up to the hospital by her mother for some swellings in the skin. These had made their first appearance fourteen days after birth, the skin being quite normal at birth. The swellings, which were scattered over the body without any predilection for site, were about the size of a lentil when they appeared, and red in colour. Many of these disappeared spontaneously, becoming yellow before doing so, and as soon as some had vanished fresh lesions made their appearance. The mother stated that she was born with similar swellings, which came and went up to the age of 14—there was no sign at the time of examination. Although the lesions resembled clinically those met with in a case shown by the exhibitor before the Section in June, 1909,[1] they differed in that they were not present at birth, and that some fresh lesions appeared after the initial outbreak, but the tendency to spontaneous cure was characteristic of both. Histologically the tumour was a new growth composed mainly of endothelial cells and fixed connective tissue cells.

There were some giant cells in the subpapillary layer of the cutis, which the exhibitor regarded as being capillaries blocked by an aggregation of endothelial cells, since, with a high power, distinct cells with faintly stained nuclei could be made out, and in those where the occlusion was not complete red blood corpuscles were visible. These giant cells and the endothelial cells around them and the fixed connective tissue cells contained small particles of fat, which stained well with Sudan III, but brownish-black instead of black with osmic acid; therefore the fat was considered to be not a true fat.

Owing to the frequent occurrence of angiomata amongst the xanthoma lesions and the histological appearances of the two cases the exhibitor looked upon the disease as being a new growth, probably of that portion of the mesoblast which was destined to form the walls of the capillaries—an endothelioma.

The exhibitor was greatly indebted to Dr. Thursfield and Dr. Adamson for the case.

[1] *Proceedings*, 1909, ii, p. 142.

DISCUSSION.

Dr. GALLOWAY asked whether any recent account of the histology of xanthoma occurring in glycosuria, or associated with visceral disease, had been published. There could be no doubt of the possibility of the disappearance of nodules of xanthoma. He had shown a case to the Section of xanthoma in a young man affected with sèvere diabetes, in whom the tumours disappeared under observation while he was being treated as an in-patient in the hospital.

Sir MALCOLM MORRIS said he recently saw, in a gentleman from Southampton, a severe case of xanthoma diabeticorum, in whose urine there was no sugar, nor did there ever appear to have been. About a week after he had been put on anti-diabetic diet many of the lesions had disappeared.

Dr. SEQUEIRA read for Dr. Parkes Weber the following note: The case shown by Dr. Parkes Weber at the Dermatological Section on May 21, 1908,[1] as a case of "multiple xanthoma in an infant," exactly resembled Mr. McDonagh's case in the naked-eye appearance of the lesions. At the meeting it was suggested that the case might be one of urticaria pigmentosa, but Dr. Graham Little afterwards examined one of the lesions microscopically and told Dr. Weber that it was certainly not urticaria pigmentosa. The lesions in Dr. Weber's case had since then disappeared spontaneously.

## Case of (?) Mycosis Fungoides.

By J. H. SEQUEIRA, M.D.

THE patient, a dairyman, aged 48, was born in Wales, but had lived for the past twenty-five years in the East End of London. He had had no previous illness, and denied ever having syphilis. The Wassermann reaction was negative. The patient has two children in good health.

Two years ago, in the summer, he had an outbreak of "boils" on various parts of his body. These lasted a short time and disappeared under treatment administered by his private doctor. Fifteen months ago he had an attack of what he called "pimples" on both knees. These spread and were accompanied by intense itching; the scratching consequent upon this eruption seemed to aggravate the condition, and he saw a medical man, who informed him that he had "poisoned" the places with dirt from his fingers. He was treated with ointments and lotions for a month, but without benefit. A rash then appeared on the back and shoulders; this also was accompanied by intense itching, which

[1] *Proceedings*, 1908, i, p. 92.

has characterized the disease throughout. The rash gradually spread until almost the whole of the body was involved.

During the summer of 1910 he suffered from excessive sweating, his clothes being soaked in perspiration if he took the least exercise. He was also conscious of sudden flushes about the body, accompanied by free sweating, these flushes being independent of exercise. He consulted various medical men, one of whom told him that the affection was dependent upon "change of life," and that it would pass off naturally in a year or two.

In October, 1910, he consulted Dr. Sequeira, and his condition then was similar to that now present. There were numerous red, fairly well defined, slightly scaly patches, some of them as large as the palm of the hand, and others even larger on the trunk and extremities, particularly on the shoulders, the loins, buttocks, abdomen, inner and back surfaces of the thighs, the fronts of the legs, and, to a less extent, on the flexor surfaces of the upper extremities. There was one small patch on the right cheek, but the rest of the face and scalp were unaffected. In many places the surfaces showed abrasions and linear scratch-marks, for the pruritus was described as being intolerable.

There was nothing in the manner of the patient's living to account for the condition. He is a moderate drinker, and does not smoke, and he has taken usually the plainest of food.

In October, 1910, on the assumption that the condition was most likely a pre-tumour stage of mycosis fungoides, Dr. Sequeira ordered a course of X-ray treatment, which benefited the patient considerably, and for a time relieved the itching entirely. The pruritus has returned as badly as ever during the past two months, and the patient was brought to the meeting for a confirmation of the diagnosis, which had been made provisionally.

The blood examination showed nothing abnormal, and there has been no enlargement of the lymphatic glands or of the spleen. The pruritus interfered so much with the patient's sleep that it had induced a nervous condition, intense irritability, and inability to perform the usual routine of his work.

It was proposed to continue the X-ray treatment.

## DISCUSSION.

Dr. PRINGLE thought the large lesions were eminently suggestive of mycosis fungoides, having seen a considerable number of similar cases.

Dr. PERNET regarded the case as one of early mycosis fungoides.

## Alopecia of acquired Syphilis in a Boy aged 7.

By J. H. SEQUEIRA, M.D.

ON February 21 the patient was brought by his mother to the London Hospital on account of the loss of hair, which had been attributed to ringworm, and for which the child was excluded from

Alopecia of acquired syphilis.

school. The mother and father and the five other children are said to have good health.

On examination the boy was found to be anæmic and rather thin. He had numerous spots of impetigo, dried crusts on the scalp and the back of the neck. The glands behind the ears and the angles of the lower jaw were enlarged and very hard. The epitrochlear glands, and also the glands in the supraclavicular fossæ, axillæ and groins were also enlarged and shotty. A rash consisting of dusky red, slightly raised and infiltrated papules was scattered over the shoulders and the upper two-thirds of the back. There were also two small, dull-red scaly

patches on the front of the chest, just above the ensiform cartilage, and another on the front of the bend of the right elbow. There was no iritis or choroiditis, and the mouth and throat were free from ulceration. The alopecia was of the character met with in secondary acquired syphilis, and is well illustrated in the accompanying photograph.

It was difficult to determine the site of the primary sore. The genitals were free from any evidence of syphilis, and the presence of a large gland behind the sterno-mastoid muscles suggested that the primary inoculation had occurred in one of the spots of impetigo at the back of the neck. A positive reaction to the Wassermann test confirmed the diagnosis.

## Lichen Planus of unusual Distribution.

By J. H. SEQUEIRA, M.D.

E. W., AGED 34, a married woman, came to the London Hospital complaining of a rash upon her body. She gave the following history: About a week before Christmas, 1910, she noticed a few spots, which itched, upon the back of her neck. These increased in number until a large patch between her shoulders was covered. A similar eruption then appeared upon her chest and abdomen. The itching was not severe except at night.

The patient was rather anæmic, but she described her general health as being good. She had no other trouble than the rash. There was no history of mental stress recently, though she was confined eleven months ago and was still suckling her infant. The rash was characteristic, consisting of groups of flat papules with burnished surface, with sepia-tinted pigmentation in the sites of the areas which had cleared up. The distribution of the eruption was unusual, it being limited to the middle line of the back between the shoulders and spreading out below in the loin. The areas at once suggested the distribution of the seborrhoides, and this likeness was also manifest upon the chest, where the intermammary and submammary regions were also involved. Around the waist the usual effect of the pressure of the corset was shown in the increase in the number of patches of papules. There were a few spots upon the left thigh, but the fronts of the forearms and legs and the thighs were otherwise quite free. There were a few small white spots (papules) on the buccal mucosa. The case was shown on account of the uncommon distribution.

Sir MALCOLM MORRIS said he had seen several such cases post mortem, and in one case particularly, in which abdominal section was done, the peritoneum was covered with warty vegetations associated with that form of lichen planus, with deep pigmentation. He believed there was a difference between that form and those kinds of lichen planus which were not so much pigmented.

## Report on a Case for Diagnosis (Sarcoma Cutis).[1]

By F. ASHTON WARNER, F.R.C.S.Ed., and WILFRID FOX, M.D.

THE case was shown before the Section in December last. Its nature was then somewhat obscure, and several members expressed a desire to hear a further report. The patient has since died, and the diagnosis appears to be that of an unusual sarcoma.

Since the members of the Section saw the patient in December nothing of much importance happened until February 8. During that time the patient never felt very well, however, and complained that the nodules in the skin were rather more itchy. One or two fresh ones came out on the hands where they had not been before, and some of the others disappeared in the same way as previously described. On February 8 the patient complained of a cough and a certain amount of discomfort in breathing, but there was no rise of temperature, and very little abnormal to be discovered in the chest. On February 10 the dyspnœa decidedly increased; the left side of the chest was found to be dull, but the dullness at that time did not appear to be indicative of fluid, and the breath-sounds could still be heard, although distant—the position of the heart was normal. On February 12 the dullness was very much more evident, the heart was pushed over into the right chest, and on tapping the left side 20 oz. of blood-stained fluid were drawn off. This did not, however, relieve the dyspnœa, nor did the heart go back to its normal situation. At this date, also, one single enlarged vein was observed running down the front of the chest. On February 15 the patient's difficulty in breathing still continued, and fourteen more ounces of fluid were withdrawn from the left side, which, however, gave no relief. This condition continued, the dyspnœa gradually increasing until February 18, when the patient died. It was found impossible to have a post-mortem examination made, so that the absolute diagnosis

[1] *Proceedings*, 1911 (January), iv, p. 40; and *Brit. Journ. Derm.*, 1911 (January), xxiii, p. 26.

of a mediastinal growth was not completely established, but clinically there appeared to be very little doubt that this was present.

It appeared that we had in this case a type of sarcoma in the skin which, although clinically of that condition, could not be recognized as such microscopically by the many competent pathologists who were kind enough to examine the slides.

Dr. Bertrand Dawson saw the patient on two occasions with Mr. Warner during the last few days of the illness, and agreed that the symptoms were most probably due to a mediastinal growth. The fluid from the chest was examined by Dr. John Matthews, who reported that it contained nothing of any diagnostic value.

## DISCUSSION.

Sir MALCOLM MORRIS said he considered the case was clinically a sarcoma, even though the microscope did not appear to support that view. He thought the Section was much indebted to Dr. Warner and Dr. Wilfrid Fox for having given the after-history.

Dr. GALLOWAY asked whether there was any palpable enlargement of lymphatic glands in this case. He had seen a patient who had been under the care of Dr. Hebb and Dr. Colcott Fox at the Westminster Hospital, in whom there had occurred numerous nodules in the skin of the peculiar violaceous tint shown in Dr. Wilfrid Fox's drawing. This case was one of true Hodgkin's disease, and the skin tumours were examples of lymphadenoma showing the same structure as the enlarged lymphatic glands. Cases of Hodgkin's disease occurred with little or no enlargement of the superficial lymphatic glands, but showing great enlargement of the internal lymphatic structures. It was possible that enlargement of lymphatic glands of the Hodgkin's type in the mediastinum might affect the pleura, and so produce effusions such as Dr. Wilfrid Fox described.

Dr. WHITFIELD said that pseudo-leukæmic prurigo had nothing in common with lymphadenomatous growths in the skin. The latter were large nodes and not irritable in his experience. He agreed that in Dr. Wilfrid Fox's case the tumours did not resemble lymphadenoma cutis either clinically or histologically.

The PRESIDENT said he saw some time ago a man in his out-patient department with lymphadenoma and intense generalized itching of the skin, but there was no eruption. Later a profuse eruption developed indistinguishable from prurigo, but associated with larger leukæmic growths. This case might be taken as a proof that the "prurigo" was excited by the scratching for the relief of the pruritus, but, on the other hand, such a conclusion might be fallacious.

# Dermatological Section.

April 20, 1911.

Dr. T. Colcott Fox, President of the Section, in the Chair.

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## Case of Cheilitis Exfoliativa.

By Haldin Davis, M.B.

(For H. G. Adamson, M.D.)

The patient was a young woman, aged 18, unmarried, who followed the occupation of a waitress. Four years ago vertical cracks had appeared near the centre of the lower lip on each side of the middle line. These cracks bled very much, but, except that the lips became dry, they remained otherwise normal. After a time, however, the lips began to crust over, but up till six months ago the upper lip remained unaffected. The lower lip was now entirely covered with a thick black scale or crust, here and there consisting of dried blood. The upper lip was more slightly fissured, and showed brownish scales, but not crusts, which had been exfoliated. The crust could be removed entirely. Underneath the skin was dry and shrivelled, and soon cracked, bled, and formed another crust. According to the patient, if left alone the crust became loose in the course of about five days, and could then easily be detached, but another one soon formed. The only other points worthy of mention concerning her skin were, that she had considerable seborrhœa of the scalp, and also some seborrhœic patches on the face. She exhibited two Bean's lines on the nails.

She was anæmic in appearance, and had attended for some considerable time at the Gynæcological Department at St. Bartholomew's Hospital for uterine hæmorrhage, but at the time of the examination had had amenorrhœa for several months. It was suggested by the exhibitor that the most promising method of treatment would be by means of X-rays.

DISCUSSION.

Sir MALCOLM MORRIS said he had seen one case associated with black tongue. He thought a much better result would be produced by radium than by X-rays.

Dr. GRAHAM LITTLE recalled a very similar case he had brought to the Section.[1] This had also occurred in a young woman. It seemed to benefit, at least temporarily, with zinc ionization.

Dr. MACLEOD said he had under his care at present a more marked case of the same condition, which he had found most resistant to treatment, the X-rays being of practically no benefit. He pointed out that there was another affection which was somewhat similar, in which there was a scaly, thick, exfoliative condition of the lips, possibly seborrhœic, which reacted well to the X-rays.

## Case of Functional Hysterical Trophœdema.

By E. G. FEARNSIDES, M.B.

THE exhibitor was indebted to Dr. Henry Head for permission to show this case.

H. B., a grocer's boy, aged 16, had been in constant employment with the same firm for two and a half years, when one Tuesday afternoon in November last (1910), whilst at work, knocking nails with a hammer out of a butter-tub lid, the wood slipped, and a wire nail entered the dorsal aspect of the first interosseous space of his right hand. The nail entered the flesh deeply and caused a considerable amount of pain at the time, which, however, soon ceased. The wound bled freely. His right hand was immediately bound up, and he continued his work till evening. At 8.30 p.m. on the same evening, just before leaving for home, he went to pick up a knife and found that his right hand "had suddenly gone weak," and that he had "no use at all in the hand."

The next day he went to work in the morning and was sent out as usual to get orders. This should have entailed his writing the names of the customers down in a book, but on this morning his hand was so weak that he could not write, and he had to ask each customer to write down the orders in the book.

[1] *Brit. Journ. Derm.*, 1909, xxi, p. 252.

On his round B. suddenly decided that his hand being so weak he must seek medical advice, and went to East Ham Hospital, where he saw the doctor in attendance, who ordered fomentations to the thumb. On this date, he stated that his right thumb swelled up generally, "just like his whole hand did at a later date." The wound was treated with fomentations for three days and appeared to heal by first intention, so that he was discharged without a bandage on the Friday. On this day (three days after the accident), five or ten minutes after leaving the hospital, he noticed that his right thumb and hand were "all swollen again," and by the same evening "very much swollen and black in colour." The swelling came up in the daytime and went down somewhat at night. The swelling gradually increased in amount, so that on the seventh day following the accident he returned to East Ham Hospital for further advice and treatment. On this day the swelling was very marked, and reached all over the hand as far as the wrist. The whole hand was painted with iodine and wrapped in lint, a line of treatment which was repeated at the next visit four days later. He again attended at the hospital on the following Monday (thirteen days after the accident), when expectant treatment was adopted. This line of treatment did not satisfy his parents, who accordingly on the next day took him to West Ham Hospital, where he was considered at first to be suffering from a septic thumb, and again treated with fomentations. This seems to have increased the amount of swelling, and so, after a seven days' trial, lead acetate lotion was tried, and persisted with for fourteen days without any good effects. He was told then to go about with his hand free and use it as much as possible. The swelling never disappeared, although it varied in amount from time to time, going down at night and increasing towards the end of the day.

Five weeks after the accident active treatment was again adopted, cold compresses being again employed and persisted in for another fourteen days.

Nine weeks after the accident he appeared at the Out-patient Department of the London Hospital, where he was seen by Mr. Sherren and subsequently by Dr. Head, and his case was taken to be one of functional (hysterical) trophœdema.

From February 2 to February 28 he was an in-patient under Dr. Head, under whose care he still remains.

At this time he showed recurrent, soft, pitting œdema of the whole of his right hand, on the dorsal surface to a greater extent than on the palmar, coming on chiefly towards evening, with glossy, congested skin

over it, and local sweating. The line of demarcation of affected and unaffected skin was not a very sharp one, but lay exactly at the level of the carpo-metacarpal joint. The colour of the hand varied from pink when covered to a bluish tint after exposure. The muscles of the right hand were somewhat wasted as compared with the corresponding ones of the left. All movements of these muscles could be voluntarily carried out, but apparently only with difficulty and only feeble in degree, being limited by the swelling. The loss of voluntary power affected flexion and extension equally. The ulnar and median supplies over the hand were equally affected. There has been no pain. The nails were practically unaffected. There has been no sensory loss, as tested by pin-prick, cotton-wool, heat, cold, and passive movements. The reflexes everywhere were present and unaltered. The fundi and fields of vision for white and colours were quite normal. There has been no enlargement of the glands anywhere, and no signs of other lymphatic obstruction. It was noticed that in walking he fixed his right shoulder and tilted his spine, so that his right arm swung pendulum-wise from his side. Active and passive movements at the right shoulder were perfect. There was typical anæsthesia of the palate. Heart, lungs, and other systems were normal.

The case was considered to be one of hysterical (psychical) vaso-motor and lymphatic disturbance. He was treated with massage (ten minutes daily) exercises and passive movements.

Whilst he was an in-patient the pitting œdema became much less marked, but his nails became somewhat uneven and the red and glossy skin and local sweating remained as marked as ever.

Since his discharge on February 28 last he has been attending our massage department three times a week and Dr. Fearnsides has seen him from time to time. He has been going about at home. The œdema has tended to increase, but has varied somewhat in amount from day to day. Suspecting that possibly active measures on the part of the patient might be keeping up the condition, on April 12 the hand and forearm, excluding the fingers, were encased in plaster of Paris, and since that time the swelling has decreased to a very marked extent. The plaster was removed to-day (April 19), and the hand re-photographed.

His previous history presented no remarkable features; he was in general a well-informed boy, well up to the average intelligence of boys at his age in his station of life. As a child he had measles and whooping-cough. Since leaving school he had only been away from work

three days, when he attended a doctor in August, 1910, because he was a little "run down" after an alveolar abscess. He was the eldest of seven children, and as far as Dr. Fearnsides had been able to ascertain there was no psychopathic family history.

Since the accident in November last he had been continuously in receipt of 9s. 3d. a week—his earnings before this were 10s. weekly. The case appeared to be one of local lymphatic paralysis of mental origin, and gave an opportunity for testing the soundness of the divergent views on hysteria held by the two French schools headed by Janet and Babinski. An attempt is being made to prevent fraud on the part of the patient by means of a plaster of Paris encasement, and so far the evidence would suggest that the case might be held to support Babinski.

Dr. PARKES WEBER remarked that there was quite an extensive foreign literature on the subject of chronic œdema of the hands (chiefly the backs of the hands) following traumata.[1]

## Herpes Zoster in a Man aged 50.

By E. G. GRAHAM LITTLE, M.D.

THE eruption had appeared for the first time five days previously "after having his hair cut," and involved the whole of the left side of the forehead and scalp, the vesicles being typical in appearance, many of them hæmorrhagic, and in some cases running into bullæ. The upper and lower left eyelids were enormously swollen, especially the lower lid, so that the eyeball was completely occluded; a point of much interest and rarity was that the *right* lower eyelid was also much swollen, but not nearly so greatly as the left; the skin covering the nose at the level of the bridge was slightly puffy. There was no free suppuration and the swellings were entirely œdematous. There had been no pain previous to the appearance of the eruption, which was also an exceptional experience, as in this position herpes zoster was usually especially painful.

[1] See the writings of Secrétan (1901), Borchard, R. Grünbaum, Patry, Van Trooijen (1910), &c. Dr. Weber believes that a similar chronic œdema sometimes occurs in the foot after traumatism.

The eruption corresponded absolutely with the figures shown by Head[1] for the distribution of the superior ophthalmic division of the fifth nerve. Head notes in the second case referred to that the lower eyelid on the same side as the eruption was much swollen; the swelling of the lower eyelids of both sides seemed not to have been recorded before.

DISCUSSION.

Sir MALCOLM MORRIS considered that when, in such cases, the nasal branch was involved the outlook for the eye was bad. Recently a lady patient of his came out of the theatre, and as her carriage did not draw up for some time she stood on the pavement waiting for it in a cold east wind. Three days after that exposure she came out in a similar condition to this patient. She did not become septic, but there was a danger of that happening. The lids of both eyes began to be affected at the same time. In this case the pain was intense and lasted for many weeks. Mr. Jessop saw the lady for her eyes.

Dr. SEQUEIRA looked upon the œdema of the lower lid on the opposite side to the herpes as a simple extension due to anastomoses of the lymphatics across the bridge of the nose.

## Case of Erythema ab Igne.

By E. G. GRAHAM LITTLE, M.D.

THE patient was an anæmic and delicate-looking boy, aged 13, the subject of congenital hernia, for which he was awaiting operation. The history given by the mother and the boy was that he had for the past three weeks been feeling poorly and easily chilled, and had spent several hours daily sitting close up to the fire; the changes in pigmentation had not been noted before this period, namely, three weeks. There was now a well-marked fenestrated pigmentation on the front of both legs just below the knee. Of exceptional interest was the fact that the pigmented mesh-like lesions were also raised and almost warty. Perry had recorded a similar condition in *erythema ab igne*.[2] In addition to

[1] "Pathology of Herpes Zoster," *Brain*, 1900, xxiii, p. 509, fig. 19; "Disturbances of Sensation and the Pain of Visceral Disease," *ibid.*, 1894, xvii, p. 375.

[2] *Brit. Journ. Derm.*, 1900, xii, p. 94.

the pigmentation on the legs there was a similar mesh-like pigmentation of the back of both hands, but especially of the right hand; here the pigmented areas were completely flat. The boy gave the explanation that he habitually had his hands spread out over his knees when sitting by the fire. The occurrence of the eruption on any other part except the legs was very unusual. Crocker records that the pigmentation had been noted on the hands and arms in one case he had seen.[1] The time within which the condition had developed seemed incredibly short, but the history was persisted in by both the patient and his mother. The boy had a slightly xerodermic skin, not amounting to ichthyosis; the skin on the front of the knees was thickened, and it was suggested that the elevation of the lesions might be explained by this circumstance.

## DISCUSSION.

Sir MALCOLM MORRIS said that in the cases of the kind he had seen the condition arose only after very prolonged warming at the fire. He did not think it likely that only three weeks' warming would suffice to bring out the present condition. Children at institutions sometimes were found with a similar condition on account of stasis and cold.

Dr. WHITFIELD said he believed that the epidermic thickening was akin to angio-keratoma in the way of production. He thought there was first chronic congestion with telangiectasis, and upon this a certain degree of wartiness developed.

Dr. PARKES WEBER remarked that if Dr. Little's explanation of the reticular markings on the legs and backs of the hands was (as seemed probable) the correct one, the peculiar condition of the skin (which was rough and slightly raised above the general surface) of the pigmented lines on the legs might be accounted for as a result of heat and venous engorgement in a boy whose natural tendency to hyperkeratosis was proved by the rough, thickened skin in front of both his knees.

[1] "Diseases of the Skin," 3rd ed., 1903, i, p. 74, under heading "Erythema ab igne."

## Case for Diagnosis.

By J. M. H. MacLeod, M.D.

The patient was a woman, aged 50, who, though of a somewhat delicate appearance, had enjoyed good health, and lived most of her life in the country. When a child she had tuberculous glands of the neck, the scars of which were still evident, but she had no other physical signs of tuberculosis. There was a definite tuberculous family history, however, a sister of the patient having died of phthisis. The condition for which the patient was exhibited was a peculiar affection of the face characterized by the presence of subcutaneous thickenings, which were flat, well-defined, and felt like pieces of india-rubber, with rounded edges situated in the hypoderm. The lesions varied in size from a sixpence to a florin, and were round or oval in shape. The skin over them was unaltered at first, but as the swelling increased it became somewhat raised, and assumed a pinkish or purplish tinge, with small telangiectases ramifying over it. The lesions were not definitely painful or tender on pressure. They tended to disappear spontaneously in a few months, leaving a depression from a distinct loss of subcutaneous tissue, but no scar, the skin over the depression being unaltered in texture, and the lanugo hair persisting. The first of those lesions appeared on the left side of the forehead seven years ago. It was soon followed by another on the left cheek below the malar bone. These underwent spontaneous involution. Since then other lesions of a similar type have appeared on the right side of the face, and the patient has never been quite free from them; at the time of exhibition one about the size of a florin being present below the right malar prominence. The exhibitor has had the case under observation for the last three years, and has found that their disappearance is accelerated by Finsen light treatment.

The nature of the case is uncertain. At first it was thought that it might be an anomalous case of lupus erythematosus, as when first seen the most prominent feature was the erythematous and telangiectatic condition of the skin, and the affection corresponded in every detail to what Besnier had described as a peculiar form of lupus erythematosus associated with deep swellings. Further observation of the case, however, led to the conclusion that the lesion was essentially hypodermal, and that the changes in the skin were secondarily produced probably to

some extent mechanically by pressure, the exhibitor having recently observed a precisely similar condition of the skin resulting from the presence of a flat mass of paraffin situated in the hypoderm, which had been injected into a lady's cheek for the removal of wrinkles. Unfortunately the exhibitor had not been able to obtain a biopsy in the case, so as to decide the more likely hypothesis that it might be a tuberculous condition, and of the nature of diffuse scrofulous gummata, which became absorbed without breaking down. A case of a somewhat similar type was recently described by Wende[1] under the heading of "Nodular Tuberculosis of the Hypoderm."

DISCUSSION.

Sir MALCOLM MORRIS remarked that there were some cases in which the condition on the legs looked like erythema induratum. There was left a cup-like depression without any ulceration. He had seen some cases much disfigured by attempts at treatment by injecting paraffin.

Dr. DORE said he had seen a case of lupus erythematosus which became sclerodermic. Dr. Wilfrid Warde described some cases of sclerodermic lupus, but in these there were neither nodules nor depressions.

Dr. GRAHAM LITTLE was reminded of a somewhat similar case shown by him to the Dermatological Society of London in February, 1901.[2] The patient, a young woman, had had disk-like granulomatous patches on the arm diagnosed as tuberculous, which had involuted rapidly and spontaneously, leaving atrophy; subsequently this patient had developed typical lupus vulgaris of the face.

Dr. SEQUEIRA remarked that Wende's case recently described appeared to be of similar character. It went on for a long time and gave a positive reaction to tuberculin. The tumours were described as being like erythema induratum, and they eventually disappeared.

## Case of Acute Lupus Erythematosus.

By J. H. SEQUEIRA, M.D.

THE patient, a deaf-mute girl, aged 17, had enjoyed good health until a year ago, when a red patch appeared suddenly upon the left cheek. This was followed a few days later by a similar patch upon the right cheek. The eruption had gradually spread since. The eruption

[1] *Journ. of Cutan. Dis.*, New York, 1911, xxix, p. 1.
[2] *Brit. Journ. Derm.*, 1901, xiii, pp. 97, 98.

had the characteristic butterfly distribution, involving nearly the whole of both cheeks, and a narrow band across the root of the nose. The auricles were also symmetrically affected. The patches were of a rather dusky red tint, the colour disappearing entirely upon pressure, and there was very little scaling except upon the auricles. Upon the dorsum of each hand and on the extensor surface of each wrist there were numerous livid red spots, the size of a shilling, resembling in every point a toxic erythema commonly met with in this situation. The feet and legs were free. There were, so far as could be made out from the patient by signs, no subjective symptoms. The buccal mucous surfaces were quite free from eruption. There was no evidence of tuberculosis in the patient, and nothing pointing to intestinal toxæmia. The urine, examined since, contained albumin—about 1 in 12 on boiling. There were no casts.

The only point in the family history, which was obtained from a friend, was that the girl's mother had died from tuberculosis of the lungs.

Dr. Sequeira commented upon the fact that of about fifteen cases of this type of lupus erythematosus that he had seen all the patients had been girls or young women. He thought that this fact had not received sufficient attention in the discussions of the ætiology of this variety of the affection. That it was toxic could not be doubted from the close resemblance of the lesions in many cases with those of erythema multiforme, a resemblance which had been insisted upon several times by Drs. Galloway and MacLeod.

## DISCUSSION.

Dr. GRAHAM LITTLE recalled two cases of acute lupus erythematosus which he had exhibited, and which would be in the recollection of many members. The first case[1] was in a woman, aged 26, who had the eruption of lupus erythematosus on the face, hands, arms, knees, and feet, and subsequently died of phthisis not long after the skin eruption showed itself. The second case, also in a woman, was shown to the Section a few weeks ago.[2] This patient had got nearly completely well since then on large doses of quinine and local application of calamine lotion.

Dr. WHITFIELD, referring to the question of the affection of males, said he had seen one case very much like the present one in the person of a lifeguardsman. He had a very small indeterminate patch which he diagnosed as lupus

[1] *Brit. Journ. Derm.*, 1904, xvi, p. 470.
[2] *Proceedings*, p. 50.

erythematosus. This remained stationary for six months, and then the patient had an attack of typhoid fever, whereupon an acute outbreak supervened exactly like that in the present patient. Its disappearance was very slow after he recovered from the fever.

Dr. PERNET remarked that toxic symmetrical conditions might leave permanent telangiectatic areas, as in the case described by him in the *British Medical Journal* of December 17, 1910 (with diagrams).[1]

Dr. MACLEOD said he recorded a case very much like Dr. Sequeira's in which the lupus erythematosus appeared suddenly on the face, and became scaly three or four months later. At first the diagnosis from erythema multiforme was doubtful, but later it became definite, as the ears became affected and typical patches developed in the hands. Finally the patient died from Bright's disease within eight months from the appearance of the skin trouble.

## Case of Lichen Scrofulosorum imitating Psoriasis.

By F. PARKES WEBER, M.D.

THE patient, a boy, aged 5, had a fistulous tuberculous gumma removed, on March 16, from the right upper extremity. About the commencement of April, whilst he was still under observation, the present eruption developed. The eruption was almost confined to the trunk, and consisted of minute pale, reddish-brown, scaly papules, which on the trunk were arranged in groups so as to simulate (April 13) patches of psoriasis. Some of the papules on the buttocks were of a deeper red colour, and shiny, and there were a few on the face which resembled acne. There has been no itching. Dr. Weber has to thank his surgical colleague, Dr. Michels, for allowing him to show the case.

## Cultures of Trichophyton Roseum and Ectothrix, and Specimen of Trichophytic Invasion.

By A. WHITFIELD, M.D.

DR. WHITFIELD showed (1) two cultures of *Trichophyton roseum* obtained from a case of tinea circinata of the arm, with a photograph of the case. The peculiarity of the clinical lesion was the completely

[1] *Brit. Med. Journ.*, 1910, ii, p. 1907.

bullous character of the edge of the ring. Dr. Whitfield said that *Trichophyton roseum* had been cultivated by Dr. Adamson and himself from beard ringworm, and by Dr. Cranston Low from ringworm of the nails. He was not aware that it had previously been found in tinea circinata in Great Britain.

(2) Two cultures of a somewhat ochreous nature, very flat lying, and only slightly powdery *Trichophyton ectothrix* from tinea tonsurans. Clinically there was a large patch of reddened, but not swollen, skin on the scalp, with rather heavy silvery scaling, and many stumps. The microscope showed complete permeation of the hair, with very large oval elements and chains of similar mycelium wandering through the sheaths. The culture was shown for identification. The President said he could recognize it as an ectothrix, but was not familiar with the variety.

(3) A specimen of horny layer from the toes, showing *trichophytic invasion*. The scales had been kindly handed to Dr. Whitfield by Sir Malcolm Morris, who knew of his interest in the condition. The patient had acquired an inguinal ringworm some nine years ago, and some little time later had suffered from "eczema" of the toes, which had gone on up to the present time.

Dr. Whitfield said that he was convinced that this was an important condition which was frequently overlooked. He had drawn attention to a short series of cases in 1908, and again in 1911, and Sabouraud had published an excellent paper on it in 1910. Cultivation, which was extremely difficult, had yielded in Sabouraud's hands the *Epidermophyton inguinale*. Dr. Whitfield had two cultures growing, but they were too young to identify at present. He would point out that, as he had stated in both of his papers, the infection might determine an acute vesico-bullous dermatitis indistinguishable from acute eczema or cheiropompholyx, or it might produce a chronic scaly condition, generally diagnosed as "gouty" eczema.

Dr. G. PERNET said that the late Dr. Radcliffe-Crocker and he had investigated a good many cases of so-called eczema of the toes and other parts from the point of view of fungus. Dr. Pernet had frequently found fungus. These cases had not been published, and, unfortunately, his descriptive notes of the fungi found had been mislaid by the late Dr. Radcliffe-Crocker. Dr. Pernet also referred to Djélaleddin-Moukhtar's paper bearing on the subject.[1]

[1] *Annales de Dermat.*, Par., 1892, iii, p. 885 ("De la Trichophytie des regions palmaire et plantaire").

## Case of Angio-keratoma.

By A. WINKELRIED WILLIAMS, M.B.

THE patient was a girl, aged 17, suffering from angio-keratoma, limited to the little finger of one hand. The lesions were clustered telangiectatic points; some had a little granulomatous cellular infiltration round them, and two had distinct corn-like thickening of the horny layer over them. One oblong papule near edge of nail showed, under the diascope, distinct lupus-like tissue.

## Case for Diagnosis.

By A. WINKELRIED WILLIAMS, M.B.

A BOY, aged 8, with patch of three years' duration on cheek. The onset was a vesico-pustule closely resembling a vaccinia vesicle—in fact, the doctor who saw it at the time thought it was an accidental vaccination. After this healed, leaving a scar, an eruption gradually developed round and especially above the scar. This appeared to be worse at one time than another. There were now clusters of small, rather larger than pin-head-sized areas in the corium. They were very slightly raised above the skin surface, and were of a yellow ochre tint. The diascope showed a certain resemblance to lupus, but more opaque and yellowish in tint. They have not reacted to a 5 per cent. tuberculin ointment, &c. The application of a 0·5 per cent. watery solution of eosin and exposure to direct sunlight rapidly afforded complete relief to this painful catarrh, and has (in conjunction with X-ray treatment) considerably reduced the lupus infiltration. Since the mercurial treatment it has been possible to have a Wassermann reaction taken; it was negative, while the tuberculin skin reaction is strongly positive.

### DISCUSSION.

Dr. WHITFIELD doubted whether the case was one of lupus, considering it rather as sebaceous hypertrophy. There was much vascular dilatation.

Dr. GRAHAM LITTLE thought this was probably a mild case of adenoma sebaceum ("Pringle" type of French authors).

## A very extensive Case of Lupus in an elderly Woman.

By A. WINKELRIED WILLIAMS, M.B.

THE disease involved half the scalp and nearly the entire face. The greater part had undergone spontaneous involution, leaving a thin, white scar more resembling that left by lupus erythematosus or a syphilide than a tubercular lupus. In consequence of this smooth scar, the possibility of a mixed tuberculous and syphilitic lesion was considered, and a three months' course of mercury and iodide was administered with slight improvement. For a long time the greater part of the facial lesion remained obstinately catarrhal, and consequently very painful, and it resisted such remedies as boric applications, Brooke's ointment (ichthyol, salicylic acid and oleate of mercury).

# Dermatological Section.

May 18, 1911.

Dr. T. Colcott Fox, President of the Section, in the Chair.

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## Large Pigmented Vascular Sclerosing Nævus in a Girl aged 10.

By H. G. Adamson, M.D.

The whole of the right lumbar region was occupied by a large oval, reddish-brown patch, measuring 8 in. by 6 in. At the central part of the patch was a white area measuring 4 in. by 3 in. By firm pressure with a glass the colour of the patch could be pressed out, leaving the skin white, like that of the central part. The skin occupied by the patch was thickened and leathery, like that of scleroderma. The child was in good health; she was the tenth child, and there were no marks on the other children. She was born with a slightly raised black mark on the right flank, about 3 in. by 1½ in., and with its long diameter running parallel with the ribs. The black patch had gradually become white, and at 4 years of age the white area had become surrounded by a red ring, which had increased in size, and which continued to grow. The white area at the centre of the patch suggested that some caustic might have been applied, or that some ulceration had occurred; but this had not been the case.

Clinically, the patch suggested a patch of scleroderma, but the history was in favour of its being a nævoid growth.

Mr. McDonagh had kindly made a microscopical examination. A piece was removed from the lower margin of the patch. Histological examination showed (1) a marked increase in pigment, confined to the basal cell layer of the epidermis; (2) in the corium numerous newly formed blood-vessels, without any sign of inflammatory cell exudation; (3) a dense connective tissue, made up of spindle-shaped connective

tissue cells; (4) a sparseness of elastic fibres. There were no cells of the pigmented mole type, and the pigment was confined to the epidermis, not to the corium, as in a pigmented mole.

The histological findings showed that the lesion was a growing vascular nævus, with rapid formation of new fibrous tissue.

Dr. Adamson was indebted to Dr. Horton Smith Hartley for allowing him to show the case.

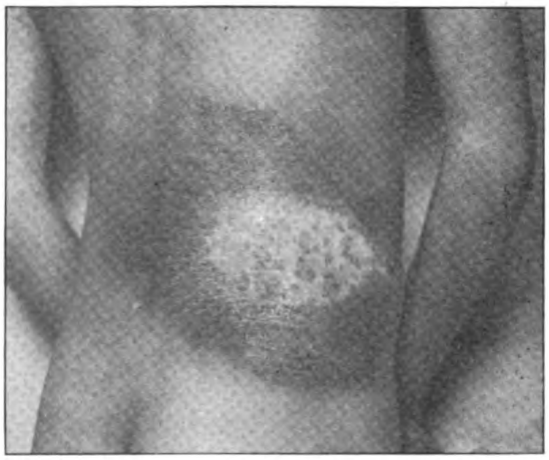

FIG. 1.

Pigmented vascular sclerosing nævus.

## Pityriasis Rubra Pilaris in a Girl aged 5.

By H. G. ADAMSON, M.D.

THE patient had been under the exhibitor's care nine months ago for an eruption, which was then diagnosed as follicular psoriasis. The diagnosis of pityriasis rubra pilaris had been thought of at that time, but many of the characteristic features of that affection were absent, and the follicular eruption had been followed by a typical eruption of psoriasis. From this the patient became quite free after an attack of measles in November last. The present eruption was of one week's duration. It began as a redness and scaliness of the tips of the fingers; then the palms became red and scaly; then the folds behind the ears; red, scaly patches appeared on the knees; the neck and body became

covered with small red follicular papules, and finally the face became red and scaly. The case now presented all the features of pityriasis rubra pilaris. Almost the whole trunk and parts of the limbs were covered with firm red, pinhead-sized follicular papules. The face was red and scaly; the palms were red, and desquamating in large flakes; the follicles on the backs of the fingers were picked out characteristically by small red papules; there were large red areas with thick scales

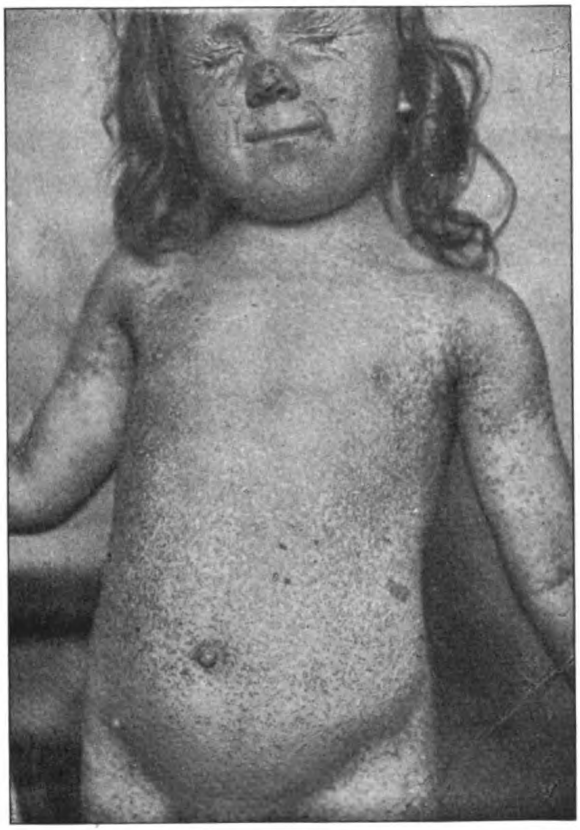

FIG. 2.

Pityriasis rubra pilaris; showing the characteristic follicular papules on the trunk.

on the knees, and scaly patches on the scalp. The only feature in which the eruption differed from a classical pityriasis rubra pilaris was that the follicular papules did not present horny plugs, but showed silvery scales on scratching with the nail.

This case recalled a somewhat similar case in the child, aged $4\frac{1}{4}$, which was shown by Dr. Whitfield in 1902 (*British Journal of Dermatology*, xiv, p. 470), in which the diagnosis between pityriasis rubra pilaris and follicular psoriasis was discussed. In that case also the follicular lesion had a cap-like scale, and no central plug, and for that reason Dr. Whitfield had regarded the case as follicular psoriasis. Subsequently, in 1904 (*British Journal of Dermatology*, xvi, p. 462), Dr. Whitfield had again shown the same case with the definite diagnosis of pityriasis rubra pilaris.

FIG. 3.

Pityriasis rubra pilaris; shows the scaly condition of the face and palms.

Dr. GRAHAM LITTLE recalled an early case of his, shown to the Dermatological Society of London (*British Journal of Dermatology*, xii, p. 92). The sister of this patient had been demonstrated to be the subject of psoriasis. He would also mention that in the case of pityriasis rubra pilaris shown by him a few months ago, the application of an ointment consisting of salicylic acid 1 oz., and oil of cade 3 dr., cleared the eruption after many other applications had failed.

## Case of Sporotrichosis.

By H. G. ADAMSON, M.D.

THE patient was a man who had lately been in Brazil, where he had got the infection. It was a classical case, with a chain of nodular swellings along the forearm. Cultures of sporotrichium (exhibited) had been grown from the lesions, and Mr. McDonagh had obtained a positive Wassermann reaction, using a sporotrichium culture as the antigen. Sections showed a granuloma with giant-cells.

## Extensive Lupus Erythematosus associated with Symmetrical Gangrene in a Man aged 49.

By G. W. DAWSON, F.R.C.S.I.

THE disease began last July, and now there were characteristic patches of the erythematous type on the face, ears, scalp, and back of hands and fingers. For some considerable time he had complained of his fingers going dead and white; actual necrosis had taken place at the end of the right little finger and the lower part of the helix of the right ear; besides these there were several small eschars on the back of the fingers and a few on the nose, leaving slight scarring to mark their site.

Dr. GALLOWAY said that it was unusual to find patches of necrosis of this type on the extremities in cases of lupus erythematosus, but the course of this disease and the chances of septic infection of the extremities rendered it quite possible. He thought that it was not advisable to apply the term "Raynaud's disease" to this condition: it was especially to be observed that the tips of the fingers were not affected by the necrotic process. No doubt the term "Raynaud's disease" had become loosely applied, but the present case did not seem to him to warrant the diagnosis.

## Case of Fibromatous Tumours in a Man aged 55.

By G. W. DAWSON, F.R.C.S.I.

THE patient said he first noticed them at the age of 20. They were very numerous, and varied in size from a walnut to a shot. They were distributed over the body, face, and limbs, but were more numerous on the trunk. The skin was freckled, and here and there were large patches of pigmentation.

DISCUSSION.

Dr. WHITFIELD said a case was shown at the Dermatological Section a year or two ago in which great improvement was said to have occurred following the injection of fibrolysin. He would like to ask whether any member knew of further trial of this treatment, and, if so, whether any benefit had resulted.

Dr. F. PARKES WEBER said he had tried fibrolysin in a typical case of the kind, and although the injections were not persisted in for long, he was convinced that it was of no use in the condition.[1] Even if some of the molluscous fibromata were to diminish in size under treatment by fibrolysin, no permanent benefit would be derived.

## Case for Diagnosis.

By G. W. DAWSON, F.R.C.S.I.

THE patient was a woman, aged 53, presenting several patches of baldness on the scalp for the last three years. They began as very small cicatricial-looking bare spots which gradually extended to form larger patches. The case was shown as one of "pseudo-pelade," but some of the members did not agree with the diagnosis, and considered it alopecia areata.

DISCUSSION.

Dr. PRINGLE could perceive no signs of scarring, or of the typical circumpilar epidermic collarette round the hairs outside the bald areas, so that he could see no tangible grounds for the diagnosis of "pseudo-pelade."

Dr. PERNET said that in some of those obstinate cases of alopecia areata he had seen good results from mercury internally. It had been his practice in that kind of case to exhibit mercury before the days of the Wassermann test, and he always looked for stigmata of syphilis. As to the name "pseudo-pelade," he did not think it was a good one; "cicatricial alopecia" was better.

## Case of Leucoderma Syphiliticum.

By E. G. GRAHAM LITTLE, M.D.

THE patient, a man, had contracted syphilis about ten months ago; he had the scar of a chancre on the prepuce, and he had been seen earlier in the development of the disease with a well-marked syphilitic roseola. The leucoderma had been noted more recently, and was well marked on both sides of the neck. There was not at the present time any other manifestation of syphilis. The Wassermann reaction had been

[1] *Vide* F. P. Weber, "Case of Recklinghausen's Disease," *Proceedings*, 1910, iii (Clin. Sect.), p. 79.

taken and had proved positive. The patient was of somewhat effeminate appearance, and it had been suggested by a colleague of the exhibitor that there might be an element of hermaphroditism in the case: the male organs were, however, quite normally developed, and this suggestion could not be sustained.

Leucoderma syphiliticum was an extremely rare event in a male. The exhibitor had never seen a previous case, and his colleague, Mr. Ernest Lane, whose experience of syphilis was exceptionally extensive, assured him that he also had never seen this condition in a male patient. No earlier eruption had been noted in the position where the present pigmentation was present, so that this was probably primary, not secondary, adopting the classification of Darier (*La Pratique dermatologique*, article, " Melanodermie ").

DISCUSSION.

Dr. PERNET said he had seen several cases of the kind in males, and in two of them he noticed there were some of the secondary sexual characters of the female. Both these cases were seen at the Hôpital St. Louis. The present patient was of an effeminate type. Dr. Pernet had also had two other cases under his own care, one of them exhibiting a pigmentary syphilide of the abdomen as well as of the neck.[1] One of these men he had demonstrated to the members of the Polyclinic. If the condition were looked for in a systematic way more examples of it would no doubt be observed.

Mr. BEDDOES remarked that the condition was distinctly rare, and he had not seen it in any case in which there were not nits in the hair.

Dr. PERNET, in answering Mr. Beddoes, said he had seen the condition in women in whom there were no nits.

## Urticaria Pigmentosa of the Macular Type in an Infant.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a Jewish male infant, aged 8 months. The eruption had appeared for the first time when the child was 7 weeks old, at first as a red rash, afterwards turning yellowish. There were now very numerous patches of disease on the chest, shoulders, back, abdomen, pubic region, thighs, buttocks, and calves of the legs ; less thickly grouped on the scalp, forehead, cheeks and neck. The hands and feet were quite free and no lesions were noted on the mucous membrane of the mouth. The glands in the neck and groin were notably enlarged. The eruption

[1] *See* Pernet, " The Pigmentary Syphilide," *Brit. Med. Journ.*, 1909, i, p. 184.

was not itchy. There were five other children, none of them similarly affected.

The lesions were a light yellow, changing to red on friction, and formed patches varying in size from that of a threepenny-bit to that of a shilling.

## ? Urticaria Pigmentosa in an Adult.

By E. G. Graham Little, M.D.

The patient was a young woman, now aged 22. There was no itching anywhere. A Wassermann reaction had been done and proved negative: the hymen was intact and there was no history of syphilis.

A portion of a circumscribed pigmented lesion from the arm was excised and a report of the histology would be furnished later.

The exhibitor took the view that this was a case of adult urticaria pigmentosa, and it strongly resembled another case reported by him (*British Journal of Dermatology*, 1905, Observation 13 of the personal series then recorded). Also in an adult in whom there had been extensive diffuse pigmentation as well as circumscribed lesions of urticaria pigmentosa. The adult cases were exceedingly uncommon, but the exhibitor had collected notes of about twenty-two such up to 1905, and since that date other cases had been recorded, notably those of Bohac (*British Journal of Dermatology*, xx, p. 18); of the exhibitor (*British Journal of Dermatology*, xx, p. 232), a case in which a similar distribution in the forearms was noted; a case in an adult woman shown by Sir Malcolm Morris, the reference to which was not traced, at the Dermatological Society of London; a case shown by Dr. Eddowes in a man, aged 28, the eruption about eighteen months ago, merely as stains on the skin; there were no subjective sensations.

There were two types of pigmentation present in this case:—

(1) An extensive light brown diffuse pigmentation alternating in places with small areas of leucodermia, covering the whole back of the trunk from the neck to the buttocks and less deeply coloured on the front from the breasts to the pubes. Over the hips on both sides there were large irregular leucodermic patches and several smaller areas on the back. On this pigmented region there were no lesions like those of urticaria pigmentosa except on the lower part of the abdomen, where there were a few small, round, deeply pigmented areas the size of a small pea.

(2) Very numerous, much more deeply pigmented, circumscribed lesions, occurring almost exclusively on non-pigmented areas: the colour

ranged from a deep red to a walnut-brown; the size of the lesions was uniformly small, of about ¼ in. in diameter, and the brown colour became suffused with red and the lesion turgid when scratched or rubbed. These lesions were distributed numerously over the shoulders, upper arms, on the anterior and posterior aspect, on the thighs and legs; a few were seen on the pigmented skin of the abdomen (*British Journal of Dermatology*, xv, p. 296), and a case shown by Rutherford (*British Journal of Dermatology*, xvi, p. 233), in which a diagnosis of syphilis had been altered to that of urticaria pigmentosa on the authority of a histological examination of a lesion.

Sir MALCOLM MORRIS said he showed a case of a middle-aged woman, who had the condition badly, and in whom it was still persisting. He did not arrive at a diagnosis until he had seen her several times.

## Case of Sycosiform Syphilide.

By G. NORMAN MEACHEN, M.D.

THE patient was a printer, married, aged 38. He stated that about four months ago a small place "like a corn" appeared upon the left palm, which gradually ulcerated, but was never painful. Six weeks ago he noticed "sores" upon the chin and face, also painless. There was no history whatever of any primary disease, nor were there any lesions inside the mouth or throat. On examination there was a shallow ulcer the size of a sixpence, situated upon the ulnar side of the left palm, while upon the chin, upper part of the neck, the eyebrows, and the upper lip were scattered papillomatous, vegetating lesions, hardly justifying, perhaps, the appellation "framboesiform," but more truly sycosiform in character: they did not discharge, and were painless. The blood gave a strongly positive Wassermann reaction (original method). The tendency towards the localization of framboesial lesions in syphilis to the head and face was a point to which attention had been previously drawn by Dr. Galloway (*British Journal of Dermatology*, xv, p. 209). It was also interesting to note that in a case of this type of syphilide, shown by Dr. Graham Little before the Dermatological Society of Great Britain and Ireland, in 1905,[1] a localized patch of hyperkeratosis was present upon the right palm. In the present case there was a small hyperkeratotic patch over the left thenar eminence, and also a similar area upon the right palm.

[1] *Brit. Journ. Derm.*, 1905, xvii, p. 108.

DISCUSSION.

Dr. PRINGLE'S experience was that such "sycosiform" and "frambœsioid" syphilides occurred usually within the first few months of the disease, and were indicative of a very malignant type of infection, two of his cases having developed severe cerebral symptoms (? meningeal). They were of especial frequency on the scalp and face; and in no class of case did the *immediate* superiority of salvarsan over treatment by mercurials seem to him more striking. Despite the apparently immense destruction of tissue the amount of resulting scar was often quite trifling.

Dr. WHITFIELD pointed out that in this case the lesions were almost entirely confined to the hairy regions of the eyebrows, cheeks, and chin. He considered that this was an exaggerated form of syphilitic folliculitis or "sycosiform" syphilide, which was sometimes very difficult to distinguish from true staphylococcic sycosis. He agreed with Dr. Pringle that frambœsiform syphilides, when present, were especially common on the scalp.

Dr. GALLOWAY remarked on the unusual characters of the eruption, and thought that the peculiar features were due principally to the fact of the larger hair follicles of the face and neck being involved; the eruption appeared to be a sycosiform rather than a frambœsiform syphilide. Occasionally syphilis did produce a widespread eruption which closely resembled yaws, but in this country it was exceedingly rare. One very characteristic case had been under Dr. Galloway's observation and treatment. He considered the true frambœsiform syphilide a feature of the earlier period of syphilitic infection in the so-called secondary stage. The case to which he referred occurred in a young woman who had a chancre on the lip followed by excessive and general enlargement of lymphatic glands. While the glands were thus affected large numbers of soft yaws-like lesions appeared over the whole body. The subsequent progress of the case was satisfactory.

## Acute Lupus Erythematosus in a Girl aged 21.

By Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S.Ed., and S. E. DORE, M.D.

THE eruption was most severe on the upper part of the face, the cheeks being covered by large symmetrical, scaly, erythematous patches, with definitely outlined sinuous edges ending abruptly at the naso-labial groove on both sides, leaving the mouth, lips and chin free. There were also scattered discrete smaller patches on the forehead and eyebrows. The scalp was seborrhœic, but otherwise unaffected. On the back of the hands and fingers and on the palms there were small, slightly raised patches of a bluish tint and of circinate or irregular shape. The soles of the feet, the toes and heels were similarly affected, and a

few small lesions had recently appeared on the elbows and knees. The eruption was accompanied by slight itching and considerable œdema of the face. The condition began in February, 1911, and was preceded by severe chilblains during the winter. The patient attributed her illness to standing on a cold stone floor for many hours every day. Her family history was good, eleven brothers and sisters being healthy. She suffered from dysmenorrhœa and mental depression, but was otherwise healthy. There was no albumin in the urine. A special point of interest was the polymorphic character of the lesions on the hands; when the case was first seen some were like lichen planus, some like psoriasis, and others like erythema multiforme.

Dr. PERNET said there was no doubt in his mind as to the case being one of lupus erythematosus. In connexion with these disseminated forms, he mentioned the rare psoriasiform lupus erythematosus, an instance of which he had under his care. Lupus erythematosus might imitate various rashes.

## Extensive Scarring and Pustular Eruption following Scinde Ulcers.

By Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S.Ed., and S. E. DORE, M.D.

THE patient was aged 69, and had been invalided home after the Afghan War in 1882, covered with Scinde ulcers, and now presented extensive scarring of the face and limbs, and a pustular eczematoid eruption on the legs of dubious character. He had also suffered from eczema, malaria, mitral disease, and an enlarged liver after the Burmah War in 1887. In 1901 he had lead poisoning, followed by gout, and the formation of large inflamed tophi on the finger-joints. An examination of his blood had given a positive reaction to Wassermann's test, and it was thought that this might throw some light on the pathology of Scinde ulcers.

## Case for Diagnosis.

By Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S.Ed., and S. E. DORE, M.D.

THE patient was a lady, aged 34, who had suffered from a chronic lichenoid eruption on the chest, shoulders, nape of neck, and flexor surfaces of the arms and legs since the age of 14. In some parts

of the body the lichenification was diffuse; in others it took the form of patches, either pale or erythematous, resembling parapsoriasis. On the thighs and legs the patches were circular in shape. There was no thickening and very little itching. The patient's general health was good with the exception of occasional slight dyspepsia. The case was considered to come under the category of the "erythrodermias."

## Tylosis in a Woman aged 49.

By Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S.Ed., and S. E. DORE, M.D.

THE skin of the palms and soles presented excessive thickening, which terminated abruptly in a clearly defined erythematous margin resembling that of erythema keratodes. The thickening was, however, congenital, and had not changed during the twelve years she had been under observation. A peculiarity of the case was a remarkable contraction and tapering of the fingers, which approximated to the position of the "main en griffe." The patient was obese and neurotic, but enjoyed good health. It was doubtful if there was any atrophy of the thyroid. There was no history of the condition being hereditary.

## A Coloured Drawing of Nodular Lupus Erythematosus.

By GEORGE PERNET, M.D.

AT the last meeting a question had been asked as to what the late Dr. Radcliffe-Crocker meant by nodular lupus erythematosus. Dr. Pernet was able to bring before the Society a coloured drawing from a case under the late Dr. Radcliffe-Crocker. The patient was a married woman, aged 27. The first lesion appeared at the age of 16 on the right cheek. There was only one spot for the first two years; then others formed on the side of the nose. When first seen, the lesions were scattered irregularly over the side of the face, but with the exception of a hempseed-sized nodule on the left ear, there were none anywhere else. The lobes of both ears were atrophied-looking, but, according to the patient, there had never been any lesions on them. All the lesions were exactly like erythema tuberculatum, and varied from a hempseed to ½ in. in diameter, quite smooth, except one on the side of the nose, which was scaly. They were of a uniform purplish-red,

except one, which was white in the centre. The general health was fairly good. The patient had had four children, and three premature pregnancies, once at six months and twice at seven months. One of the children had died of "consumption" of the bowels. Her paternal grandfather died of phthisis.

*Note by Dr. Pernet.*—The diagnosis of this condition must be made by taking the various factors as a whole; duration, appearance and behaviour of the individual lesions, and so forth. The late Dr. Radcliffe-Crocker noted the great resemblance to erythema tuberculatum in this case. As pointed out by him, the lesions may simulate lupus vulgaris at first sight.[1]

Dr. PRINGLE referred to two cases which he had diagnosed as examples of the nodular type of lupus erythematosus, his opinion having been confirmed by the old Dermatological Society of London. Both occurred in women about 25 years of age, and in both the subsequent progress proved that they were aberrant examples of lupus vulgaris. A third case had been fully recorded by Dr. Liddell, of Harrogate (*British Journal of Dermatology*, xii, p. 319), in which he had fallen into a similar error.

## Two Cases of Leprosy.

By J. H. SEQUEIRA, M.D.

*Case I.*—A man of colour, born in Lahore, who had been in England for the past six years, and who described his occupation as a "hawker." He had small-pox when he was a year old, but had no illness until two years ago, when he began to suffer from a nasal discharge. The discharge was sometimes tinged with blood. About the same time he noticed that there was some thickening of his eyebrows, and sores appeared upon his left foot. On admission to the London Hospital there were nodular thickenings the same colour as the skin over the supra-orbital ridges, and at the root of the nose. There were small swellings also upon the lobules of each ear. The nasal cavities were ulcerated and covered with dirty crust, and in the discharge Hansen's bacillus was demonstrated. The skin of the trunk was unaffected, that of the hands was shiny and smooth, and on the dorsal aspect of each forearm on the ulnar side there were rounded patches of pigmented skin about 2½ in. in diameter. These areas and the surrounding skin were anæsthetic. The ulnar nerves were markedly thickened. On the sole

[1] H. Radcliffe-Crocker, "Diseases of the Skin," 3rd ed., 1905, ii, p. 761, where the nodular form of lupus erythematosus is dealt with.

of the right foot over the metatarsophalangeal joint there was a deep ulcer, which discharged a thin pus. The toes of the right foot were claw-like. On the right leg above the ankle there were several large patches of pigmented atrophic skin, which the patient said followed burns. On the left leg there were anæsthetic patches which corresponded mainly with the distribution of the peroneal nerves. The knee-jerks were present on both sides. The nails on both feet showed atrophic changes. There were opacities in each cornea which the patient stated were caused by ulcers which occurred when he had the small-pox. There were numerous variolar scars on the face and elsewhere. The Wassermann reaction was positive.

*Case II.*—The patient was a white man, aged 44, a steward upon a mail boat. He had been at sea since he was a boy, and had been frequently to the Far East and India, but had never been ashore for more than a fortnight at any one time. Upon the liners in which he was employed there were always coloured seamen—Lascars and Somalis—but it did not appear likely that he contracted the disease from them. Four years ago a spot appeared upon his left arm. He was very indefinite about this initial lesion, but succeeding this there appeared at intervals blisters, which first arose upon the right elbow and hand. The blisters burst, leaving depressions upon healing. Gradually an eruption appeared all over the body, and when the patient was shown at the meeting there was a characteristic gyrate and ringed eruption upon the trunk, back and front. Some of the rings were 1 in. across, and others were 3 in. in diameter. The margins of the rings were red and definitely infiltrated, varying in width from a $\frac{1}{4}$ in. to $\frac{1}{3}$ in. The centres of some of these rings were anæsthetic, but sensation appeared to be delayed in others. The eruption itched somewhat, and in parts was slightly scaly. Three months ago a sore appeared upon the inner side of the foot over the base of the fifth metatarsal bone. It had the characters of a perforating ulcer, and there was very little pain attending it. The interossei muscles of the right hand were wasted, and the hand had begun to assume the claw aspect. Both ulnar nerves were thickened. The sensibility of the right hand on its inner side and dorsum was subnormal, but not completely absent. The patient complained of numbness in that hand. There has been very little discharge from the nose; the eyes were described as being weak, but the patient stated that they had always been so. Both knee-jerks were present. The Wassermann reaction has since been examined and was found to be negative.

It is hoped that a further report upon the cases will be made when there has been a more complete examination. Dr. Sequeira proposed trying the influence of small doses of salvarsan.

## A Series of Ringworm Cultures, illustrating the Eczematoid Ringworm of the Hands and Feet.

By A. WHITFIELD, M.D.

(1) A CULTURE derived from the eruption on the hands and feet of a gentleman who had suffered from the eruption on the feet for eight years. It was interesting that two of his brothers had suffered from similar eruptions on the feet for about the same time, and the disease had therefore been diagnosed as a hereditary family affection. In all probability the disease was started as an attack of "Dhobie itch." One brother was in the Army, and had developed the disease while in India. He then came home, and the present patient thinks that it was while the soldier brother was staying at home that he developed it. The third brother did not live at home, but Dr. Whitfield had seen him, and had discovered the fungus between his toes, so that it was a natural inference that he had caught it in some way or other from one of his brothers. The culture developed into a slightly buff mound of rather coarsely woolly appearance, and when it had grown to some size developed a rudimentary crater in the centre, which was not, however, very well marked.

(2) Another culture from a case, material from which had been kindly handed to Dr. Whitfield by Sir Malcolm Morris. In this case the disease had certainly started as a groin ringworm, the toe infection being distinctly later. A further point of interest was that the toe-nails were affected in two instances in this case. The culture was absolutely identical with No. 1.

(3) A culture from a recently developed groin ringworm, which was apparently contracted in South Africa. This culture was again absolutely similar to the two previous ones.

(4) A culture obtained from a ringworm of the scalp, in which the clinical symptoms and the method of attack of the hair were undoubtedly those of the endothrix. This culture was older and larger than the other cultures, but it had the same buff colour, and showed the same central shrinkage, forming a sort of ill-developed crater.

The exhibitor believed that the fungi in all these cases were identical, and would class them all as *Endothrix trichophyta.*

(5) A subculture of Sabouraud's *Epidermophyton inguinale* to compare with these. The fungus was brought to Dr. Whitfield by Dr. Molesworth, and came from Sabouraud's laboratory. There was therefore no question as to its authenticity. It grew as a very flat and rather silky-looking culture, showing concentric rings like the markings on the cross-section of a branch of a tree. There was no marked folding in the centre, but merely shallow radiating lines such as one sees in the *Microsporon Audouini.* Dr. Whitfield said that he thought this was a fungus distinct from the others.

## DISCUSSION.

Dr. ADAMSON said he had recently seen four cases of eczematoid ringworm between the toes. In two of these cases there was a history of ringworm of the groin some months before, and in one case ringworm of the groin was still present. He had found it difficult to obtain cultures of the ringworm fungus from the toes, but exhibited a culture from a recent case which closely resembled the cultures shown by Dr. Whitfield. He was not convinced that Dr. Whitfield's cultures were endothrix ringworm, but thought they corresponded with Sabouraud's cultures of *Epidermophyton inguinale.*

Sir MALCOLM MORRIS said that a man came to him the previous day with an acute inflammation of the hands and feet; there were large scaly bullæ, and a fungus was found. The very valuable work which had been done in this connexion by Dr. Whitfield would make clearer the conception of the nature of supposed dysidrosis between the toes. It was the fourth attack in his case, and it was regarded as dysidrosis. One of the causes of relapses in schools was that many still continued the habit of omitting to wear drawers. He had seen unquestionable instances of the infection from this custom. It was particularly the case in one public school.

Dr. GRAHAM LITTLE had seen, two years ago, when the distinction now made had not been ascertained, a case in a medical man of a "ringworm" of the groin and an "eczematous" eruption of the toes; mycelium had been demonstrated in both positions. The history was that the medical man had taken over rooms previously occupied by an attaché at the Turkish Embassy. The eruption proved very resistant to treatment.

Dr. WHITFIELD, in reply, said that one of his patients was a Turkish bath attendant, and another a girl who frequented Turkish baths. The two patients did not go to the same baths. He thought in these instances the disease was probably caught from the floor of the baths.

# Dermatological Section.

June 15, 1911.

Dr. T. COLCOTT FOX, President of the Section, in the Chair.

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## Case of Sporotrichosis.

By H. G. ADAMSON, M.D.

THE affection called sporotrichosis, now so well known in America and in France, has not been met with in this country until quite recently. At the meeting of the Dermatological Section of the Royal Society of Medicine on May 18, 1911, I showed a case of sporotrichosis in an Englishman who had recently come from Brazil. This was the first case to be exhibited in this country, and a brief note was published in the *British Journal of Dermatology* for June, 1911.[1] In the *British Medical Journal* of July 1, 1911, Dr. Norman Walker published an undoubted example of sporotrichosis in which the infection had taken place in Cumberland. With the exception of a doubtful case published by Dr. v. Ofenheim in the *Lancet* of March 11, 1911, these two cases are the only examples that have yet been recorded in Great Britain. Since my own case occurred in a patient infected in Brazil it loses the interest it would have as an English case; but it is instructive to come face to face with a disease which one has hitherto only read about, and it was for this reason that I exhibited the patient at the meeting of the Dermatological Section, and that I now publish my notes and photographs relating to the case.

I shall here make no attempt to review the now very extensive literature of sporotrichosis. The exhaustive monographs of De Beurmann and Gougerot and of Bloch should be read by those interested in the subject, and also a recent summary of the knowledge of sporotrichosis by the late Dr. Hyde.

[1] See *Proceedings*, p. 101.

The main facts are as follows:—

The first case of sporotrichosis was reported in America by Schenk in 1898 as "refractory subcutaneous abscesses caused by a fungus probably related to Sporotrichia." Hektoen and Perkins, also in America, published a similar case in 1900, and obtained a fungus, which they named *Sporothrix Schenkii*. Attention was not again drawn to this disease until 1906, when De Beurmann and Gougerot published an important paper in the *Annales de Dermatologie*[1] and reported five examples of sporotrichosis. From this time the study of sporotrichosis has been taken up with vigour both in France and in America, and many cases have been published, and much histological, bacteriological and experimental work has been done by many observers.

In the early American cases the infection took place in the index finger and was followed by a train of subcutaneous abscesses, connected by a chain of lymphangitis, along the arm. It was the refractory nature of these lesions to surgical treatment which led Schenk to examine them culturally and thus to discover the sporothrix.

In the French cases the lesions have been mainly multiple and widely spread abscesses, generally hypodermic, but sometimes also dermic and epidermic. Some of the lesions were like gummata and broke down and ulcerated; others simulated lupus verrucosus.

Further study of the disease has shown that it is not always confined to the skin. The lymphatic glands may become involved. Intra-muscular abscesses, abscesses in bone, ulcerations in the mucous membranes of the throat, lesions in the conjunctivæ, iritis simulating syphilitic iritis, gummatous lesions in the testicle, and joint affections have also been reported.

Histologically, the lesions show sometimes the characters of tuberculosis, sometimes those of syphilis.

De Beurmann and Gougerot describe the lesions as presenting three types of cell infiltration in combination: (*a*) a lympho-connective tissue of syphiloid type; (*b*) an epithelioid (with giant cells) or tuberculoid type; (*c*) a polynuclear or ecthymatiform type.

De Beurmann states that the parasites have not with certainty been demonstrated in sections except in the experimental lesions in the rat. In human lesions certain globular forms have been seen, but it has been impossible to differentiate these clearly from degenerated nuclei. In the rat the micro-organism occurs in the tissues in the form of short or ovoid elements (forme *globuleuse*) included in the cells, notably in giant

[1] *Ann. de Derm.*, Par., 1906, 4e sér., vii, pp. 837, 914, 993.

cells. These De Beurmann regards as special forms and not as spores, which Hektoen believed them to be.

In smears from abscesses the fungus is only rarely and with difficulty demonstrated, as short or oblong rods, 2 to 5 $\mu$ by 1 to 3 $\mu$, free or in phagocytes.

The only certain method of demonstrating the fungus is by cultures, which are readily obtained on most of the usual media.

On Sabouraud's peptone-glucose-agar at room temperature, small, whitish acuminate colonies with a fine-rayed margin appear on the fourth to the sixth day. They slowly increase in size, and become dark brown in colour and convoluted. Films from the cultures show long filaments, 2 $\mu$ broad, together with numerous ovoid spores 5 to 6 $\mu$ by 3 to 4 $\mu$ attached to the filament by a short pedicle either singly or in groups of three to thirty.

As to the source of infection, it has been suggested that this may take place from contact with or ingestion of unclean vegetables. De Beurmann has found the sporothrix on decaying vegetable matter.

Infection might also take place from rats or from horses, in both of which animals the disease has been discovered. Lutz and Splendore have described a spontaneous sporotrichosis of the rat, and an observation by Carougeau, and some recent investigations by Gates Page, Frothingham and Paige point to an unusual form of "epizootic lymphangitis" or "glanders" in horses, met with in North and South America, as being identical with *Sporotrichium Schenkii*.

### Personal Case.

The patient, J. F., was a strong, well-built man, aged 50, by occupation a labourer. He had lived in Rio, in Brazil, and had lately been employed there as general labourer.

When first seen by me at St. Bartholomew's Hospital on April 11, 1911, he had just returned from Brazil. Although the affection from which he suffered had been much ameliorated by the treatment he had received on board ship during the journey to England, there was still enough to suggest the diagnosis of sporotrichosis.

On the right hand and arm, extending from the dorsum of the thumb to the axilla, there was a series of dusky-red, raised, softish nodules, of the size of a pea to a small marble, and these nodules were connected by a firm, raised red ridge in the skin, evidently a string of thickened lymphatics (fig. 1). The patient said that in Rio, in February, he had slightly wounded the back of his right thumb, and that the

thumb had become inflamed, the inflammation subsequently extending along the whole arm to the axilla. Several abscesses had appeared along the arm, and the whole limb had become much swollen and inflamed. No treatment had done any good until during the voyage home large fomentations had been continuously applied.

The disease now appeared to be quiescent, and the nodules, he said, were becoming smaller, but the case so much recalled the earlier

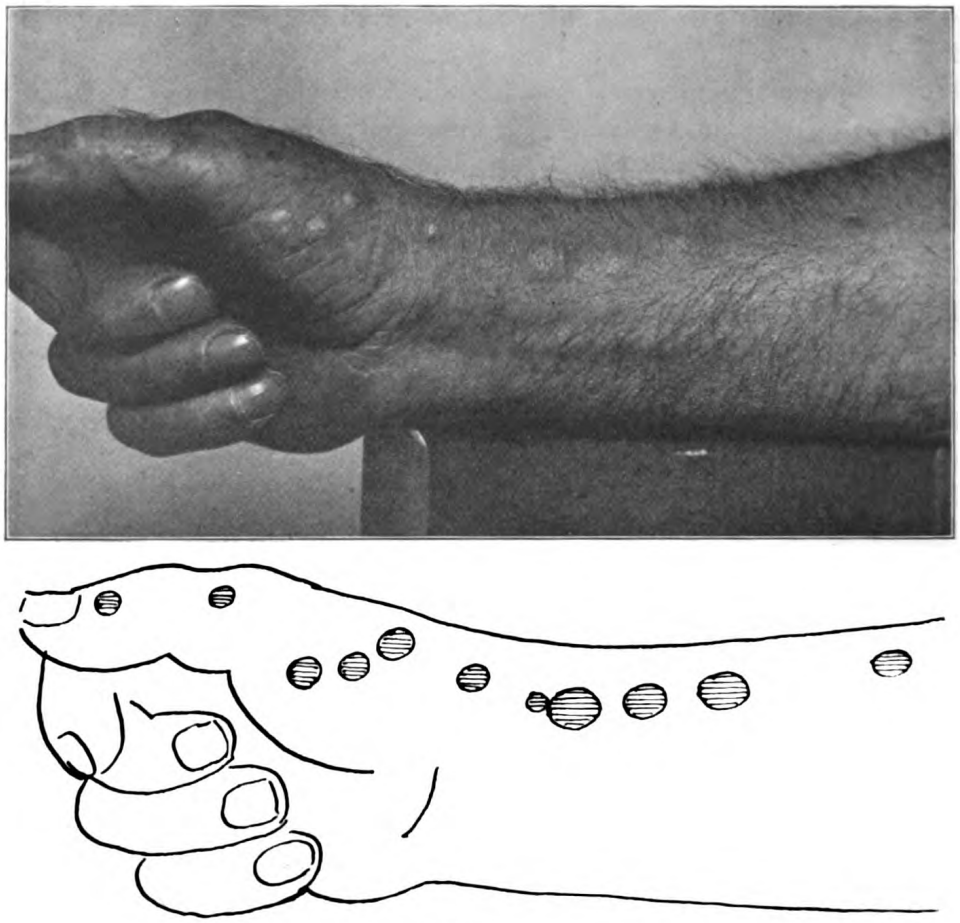

FIG. 1.

examples of sporotrichosis which had been described that I excised a nodule for microscopical examination and inoculated a number of culture tubes with the now rather inspissated pus from a small abscess. Sabouraud's proof medium, as used for ringworm cultures, was employed, and there appeared in two tubes undoubted cultures of sporothrix.

The *cultures* were at first dirty white, moist, smooth, acuminate elevations with a finely fringed margin. They appeared on the sixth day in the original cultures, on the second day in sub-cultures. They grew rapidly, became dark brown at the centre, and convoluted. At the end of two weeks the cultures were very dark brown in colour, much convoluted at their central part and finely rayed at their margin, which was still pale. The medium used was Sabouraud's proof medium (peptone Chassaing 1, glucose or maltose 3·7, agar 1·5, water 100).

FIG. 2.

FIG. 3.

The cultures were identical in aspect with a culture of sporotrichosis which had been given to the writer by M. Sabouraud (figs. 2 and 3).

*The Fungus.*—From the extreme margin of a culture a small portion of the medium containing part of the fringe of the culture was taken and mounted in liq. potassæ. Under the microscope the fungus exactly corresponded with the description given by American and French authors.[1] There were slender, pointed mycelial threads, sometimes

[1] The morphology of the fungus is best studied in hanging-drop cultures or by the "technique des lames sèches" of De Beurmann, by which the fungus is made to grow on slides very thinly covered with culture medium. (See *Ann. de Derm. et de Syph.*, 1906, vii, p. 856.)

branched, and with oval and rounded spores, attached to the mycelium singly or in groups by a fine pedicle (fig. 4).

*Pathological Anatomy.*—The lesion removed from the fore-arm was hardened in alcohol and cut in paraffin, and sections were stained by Mr. J. E. R. McDonagh, who kindly furnished me with the following report:—

"Beneath the epidermis extending into the subcutis there is a cellular mass, in part largely composed of plasma-cells, which are arranged round about the blood-vessels. The blood-vessels, except for

FIG. 4.

showing a slight proliferation of their endothelium, are normal. In other places, also arranged perivascularly, are a collection of lymphocytes; and here and there the gradual transition between these lymphocytes and plasma-cells can be made out. In other places where the blood-vessels are not obvious is a collection of cells which stain badly and cannot be differentiated—in other words, a cellular mass. Where the mass is not diffuse typical giant-cells can be distinguished.

"The giant-cells are not formed from plasma-cells, but from epithelioid cells, the origin of which in this case can by no means be clearly made out, but in places they appear to originate from endothelial cells. The plasma-cells show no variation from the normal.

"The fungus, which appears green in section stained with pyronin and methyl-green, is found very sparsely distributed. In one field a piece of jointed mycelium is seen lying in a non-cellular, faintly stained

FIG. 5.

Sections of sporotrichosis showing mycelium stained pyronin-green by Mr. J. E. R. McDonagh.

granular mass, around which the cells are few and far between (fig., 5, A).

"In fig. 5, B, a piece of mycelium ending in a club-shaped spore is seen in the centre of a giant-cell.

"In fig. 5, C, pieces of mycelium are seen, some ending in round-shaped bodies, which may probably be accounted for in the position they are lying when viewed under a microscope. Again intracellular.

"The fungus is only found in that part of the infiltration which is sparsely cellular and takes the stain badly. The granular masses are very probably broken-down giant-cells."

As already stated, the fungus has not hitherto been clearly demonstrated in sections of human lesions, and when found in the experimental lesions of the rat it occurs as ovoid bodies (the globular form of De Beurmann) and not as spores or mycelium. This is perhaps what one would expect, namely, that to overcome the resistance of the tissues some special form of the fungus would be developed other than the more simple mycelial form. It is difficult, however, to imagine what the appearances seen in Mr. McDonagh's beautifully stained sections can represent other than the mycelium of the invading organism. And it should be pointed out that although numerous methods of staining have been employed with the object of demonstrating the fungus in sections, no one appears hitherto to have used pyronin and methyl-green.

Mr. J. E. R. McDonagh also carried out the following examinations:—

*Serological Examination.*—(*a*) The serum of the patient deviated complement in the presence of a saline extract of a two months old sporotrichosis culture on maltose and glucose agar. There was no fixation of complement in the control tubes, and in syphilitic sera which had given a positive Wassermann's reaction hæmolysis was complete when sporotrichosis antigen was used.

(*b*) The agglutination test was negative, since agglutination only occurred when equal parts of serum and spore emulsion were used, and normal serum was capable of doing the same.

The spore emulsion was made from a one month old culture (glucose and maltose agar). The growth was well pounded up in a mortar with saline and filtered through moist filter paper, which allows only the spores to pass. Then various dilutions of the sera were made mixed with the emulsion, and examined under the microscope.

*Summary.*—In this case we have a typical example of sporotrichosis of the lymphatic type as first described in America by Schenk. The infection took place in Brazil. Pure cultures of sporotrichium were obtained from the lesions when already involuting. The patient's serum gave a positive reaction with the Wassermann test, using a culture from a French case as the antigen. A short-jointed mycelium has been demonstrated for the first time in pyronin and methyl-green stained sections of the lesions (by Mr. McDonagh). The lesions (already involuting) cleared up entirely with the administration of iodide of potassium.

## BIBLIOGRAPHY.

(A) *Original Papers by American Observers.*

HEKTOEN and PERKINS. "Refractory Subcutaneous Abscesses caused by *Sporothrix Schenkii*, a new Pathogenic Fungus," *Journ. of Exper. Med.*, New York, 1900, v, p. 77. (Excellent photo-micrographs of the fungus in culture.)

SCHENK. "On Refractory Subcutaneous Abscesses caused by a Fungus, possibly related to Sporotrichia," *Johns Hopkins Hosp. Bull.*, Balt., 1898, ix, p. 286.

(B) *Original Paper by De Beurmann and Ramond in France.*

DE BEURMANN and RAMOND. "Abcès sous-cutanés multiples d'origine mycosique," *Ann. de Derm. et de Syph.*, Par., 1903, iv, p. 678.

C) *Further Literature.*

References to the now very abundant literature of sporotrichosis to 1908 will be found in the *Brit. Journ. Derm.*, 1908, xx, p. 301. The following are some of the more exhaustive monographs on this subject :—

DE BEURMANN and GOUGEROT. "Les Spirotrichoses hypodermiques," *Ann. de Derm. et de Syph.*, 1906, vii, pp. 837, 914, 993.

*Idem.* "Sporotrichoses tuberculoides," *Ann. de Derm. et de Syph.*, 1907, viii, pp. 497, 604, 655.

BRUNO BLOCH. "Die Sporotrichose," *Beihefte z. med. Klin.*, Berl., 1909, v, p. 179.

HYDE, J. NEVINS, and DAVIS, D. J. "Sporotrichosis in Man," *Journ. of Cut. Dis.*, New York, 1910, xxviii, p. 321.

## Macular Atrophy in a Syphilitic Patient.

By H. G. Adamson, M.D.

The patient, W. C., aged 48, was a house painter. He attended hospital on May 26, 1911, for some patchy eczema on the arms and legs. It was then noticed that he had some leucodermic patches on the forehead and neck, and on stripping him the trunk was found to be covered with numbers of atrophic macules. The following note was made: "The patient is a well-built, well-nourished man, apparently in good general health. The skin of the forehead and neck appears unusually dark, and scattered irregularly over these dark areas are numerous oval *leucodermic patches* of the size of a split pea up to that of a finger-nail. The leucodermic patches are very white and stand out sharply against the dark background. They are not quite of the type of leucoderma syphiliticum, being less regular in distribution and more sharply defined, but they appear to be solely leucodermic and show no obvious atrophy of the skin. This, however, can only be certainly determined by microscopical examination. The whole of the trunk and the adjacent parts of the shoulders and thighs are thickly covered with oval patches of about the size of the little finger-nail. These patches are distinctly atrophic. They are paler than the surrounding skin and have a wrinkled appearance. On placing the finger over the macule there is a feeling of a hole in the skin covered by a thin membrane. The skin over the macule appears loose and non-elastic and it can be pinched up into thin folds, which remain as such for some seconds. Some of the macules have a bluish tinge owing to the fact that the network of veins can been seen through them. None of the lesions are thickened, and none present any red halo. On the sides of the chest and in front of the axillæ the lesions are arranged with their long axis in the direction of the lines of cleavage, but there is no 'linear' atrophy. The atrophic macules on the upper part of the back pass imperceptibly into the leucodermic patches on the neck, and there are patches on the borderline between the neck and the shoulders of which it is difficult to be sure whether they are leucodermic patches or atrophic macules, or both."

The most interesting feature of this case was that the patient had recently been under treatment for syphilis, and that there was evidence of the development of the leucodermic patches and of the atrophic macules from the secondary syphilitic eruption.

In February, 1909, the patient had had a sore on the penis, for which he attended at the hospital. Early in June, 1909, he had been brought to the Skin Department with a papular syphilide on the trunk, condylomata at the anus, and a sore throat. He was treated elsewhere by mercury, pills, and soamin, and did not appear in the Skin Department again until May, 1911.

No observation had been made as to whether the leucoderma and the atrophy had developed from the syphilitic eruption, but the patient was positive that the white patches had appeared on his forehead after a "blotchy red rash" which was present on the forehead in the early stage of his syphilis. The exhibitor felt, also, that had the leucoderma and the atrophy been present when he first saw the patient when he had the secondary eruption in June, 1909, they would certainly have been seen and noted.

On June 7, 1911, a blood examination was made by Mr. J. E. R. McDonagh, and the serum was found to give a strong positive Wassermann reaction.

That the patient had had syphilis was certain, and that the leucoderma and the macular atrophy had developed since the appearance of the secondary syphilitic eruptions seemed almost as certain. It seemed probable that the macular atrophy and the leucoderma had developed on the sites of the lesions of the secondary eruption, but direct proof of this was wanting.

The case now exhibited was a striking example of the affection which had been called idiopathic macular atrophy. But since the ætiology of this affection was becoming better known, there was less justification for the use of the term "idiopathic." Many cases of macular atrophy had been described in association with syphilis, others with tuberculosis, while in all cases it was now recognized that there was a local inflammation preceding the atrophy. Liveing, indeed, had long ago pointed out this last fact, but Jadassohn had first demonstrated it histologically. Macular atrophy was now to be regarded, not as a separate affection, but as a symptom, resulting from the destruction of elastic fibrous tissue, possibly by various toxins. Heuss, Thibierge, Wechselmann, Oppenheim and others had suggested that the toxins of tubercle were responsible for some cases of macular atrophy. At a meeting of the Section in October, 1910 (*British Journal of Dermatology*, xxii, p. 350) the exhibitor had shown a case of macular atrophy in a tuberculous patient.[1] Cases of macular atrophy in

[1] *Proceedings*, p. 1.

syphilitics had been recorded by Wilson, Balzer, Fournier, Danlos, Colcott Fox, Malcolm Morris, Mibelli, Respighi, and others.

A very clear account of the whole subject of macular atrophy in syphilis had been given by R. Volk in the *Archiv. für Dermatologie und Syphilis*, October, 1910, p. 9, in which he relates most of the already published cases, and adds the notes of eight cases observed by himself. According to Volk, a degenerative condition of the elastic fibres sometimes followed a papular syphilitic infiltration, producing an atrophic condition which was, however, only temporary. But the real, truly macular, loose atrophy might also be a rare consequence of syphilis. Such macular atrophic patches might occur on the seat of papules, and less often of roseola macules. That macular atrophy might develop in a syphilitic without previous clinically evident skin changes was not clearly demonstrated, but Volk thought that the possibility of such must be allowed.

Amongst other cases of macular atrophy in syphilitics the exhibitor wished to recall that in a clinical note in the *British Journal of Dermatology*, 1892, iv, p. 117.

Dr. T. Colcott Fox had described the case of a young woman (previously recorded by him in the *Westminster Hospital Reports* for 1886),[1] in whom a secondary syphilitic eruption on the trunks and thighs was followed by finger-nailed-sized, flaccid, loose, foveated scars of the same size and shape, which had been left nearly three years past by an early secondary papular eruption which did not ulcerate. There were present also dull red, very soft, slightly raised papules (?), and white, very soft and compressible papules (?) of the same size, looking at first glance like urticarial wheals. These latter when touched were easily depressed, and felt as if a thin layer of skin covered a hole in the skin. Dr. Fox also mentioned a similar case exhibited by Sir Malcolm Morris in 1885.

In 1897 an interesting discussion had taken place at the Société de Dermatologie et de Syphilis, in Paris (*Annales*, 1897, viii, p. 562). At that meeting Danlos exhibited the case of a man, aged 30, a syphilitic since six years, who showed an extensive macular atrophy limited to the trunk. The patient was sure that the macules had been preceded by the papular roseola, but could not state that the atrophic elements succeed the papular elevations *in situ*. Darier said that he had seen patients who had affirmed that they had had previously an eruption, apparently syphilitic, in the spots where the cicatricial macules were

[1] *Westminster Hosp. Rep.*, 1887, iii, p. 124.

situated. Wickham had seen several patients with similar lesions consecutive to papular syphilides. Balzer had many times seen analogous "vergetures" directly succeed papular lesions, and in two patients he had watched this transformation. Fournier had observed analogous cases. In all these cases this form of "vergetures" had succeeded absolutely dry, non-ulcerative lesions; these were post-syphilitic "vergetures."

The exhibitor thanked Dr. Colcott Fox for having kindly lent him the literature relating to macular atrophy in syphilitics.

## DISCUSSION.

Dr. PRINGLE said he was extremely interested in the case, as it threw much light upon a somewhat similar one recently under his observation, which was unique in his experience, and, as far as he knew, undescribed in literature. The patient was a man, aged about 30, who contracted syphilis in California in September, 1910. When he came under observation in February, 1911, he presented severe typical secondary maculo-papular syphilides all over the face, trunk and limbs, and he had very bad laryngitis. In addition to the macular mottling over the lower half of the back and in the flanks, the entire skin was crinkled and puckered, and all the pilo-sebaceous ducts were widely dilated, imparting a peculiar "foveated" or "cribriform" appearance quite unfamiliar to the speaker except in vaccination scars. When the affected skin, which felt excessively delicate to the touch, was stretched or rendered tense by bending the trunk, this peculiar appearance entirely disappeared and the skin looked quite normal. The patient was perfectly certain that the condition was of recent development and—in the light of the case under discussion—it was presumably the result of the absorption of a pre-existing raised rash. The absorption appeared, however, to have occurred *en masse* rather than in patches such as were presented by Dr. Adamson's case.

Dr. COLCOTT FOX said he recollected the first two cases of this kind which were shown at the old Society. Sir Malcolm Morris showed the first, and the diagnosis was very puzzling. A little while afterwards he had under care a woman, in whom a papular syphilide had left these atrophic macules, and she came later with a gumma. Strange as it may seem, he well remembered the simulation of urticaria in these cases. The atrophic skin of the lesions was pushed out to simulate wheals, and, further, some of them were reddened. The impression given to the finger on pressure by these thinned macules was very striking.

Sir MALCOLM MORRIS said he had never convinced himself that the condition followed a typical syphilitic lesion. He had never seen a syphilitic lesion which left behind it a lesion like that in the present case. An interesting case was published by Buzzi, who was then in Berlin, in the "International Atlas of Skin Diseases."

Dr. PERNET said he had seen atrophy following a syphilide, and in one case distinctly following a papular syphilide.

## Cultures of Violet Endothrix Trichophyton from a Case of "Eczematoid" Ringworm of the Fungus associated with Tinea Barbæ.

By H. G. ADAMSON, M.D.

THE patient had ringworm of the beard of the dry form with "black-dot" stumps characteristic of the violet endothrix. There were also some scaly patches on the back of the neck, and a papulo-vesicular ring on the back of one hand. On the sides of both fore-fingers there were "eczematoid" lesions, namely, areas in which were small, deep-seated vesicles, and little patches of desquamation where earlier vessels had dried up. The violet endothrix cultures exhibited had been obtained from the beard-hairs and from the lesions on the fingers. Sabouraud, in his work on "Ringworm," had mentioned two examples of violet endothrix producing vesicular lesions on the hand or fingers in which the vesicles were so large as to simulate streptococcic lesions.

The PRESIDENT said he had recently under care a boy with curious isolated bullæ on the backs of the index finger and the next finger and on the palm, but he did not suspect ringworm; but the boy had the remains of a patch on the thumb which was suggestive of old ringworm. It looked like a crateriform trichophytum.

## Case of Cicatrizing Sarcoma.

By KENELM DIGBY, F.R.C.S.

(For CHARTERS J. SYMONDS, M.S.)

THE patient, E. B., was aged 61. At the age of 22 she had a hard, white, oval swelling just above the right nipple. This swelling disappeared spontaneously. At the age of 36, when suckling a child, the patient had a swelling quite close to the right nipple. This was painless, did not interfere with the action of the breast, and persisted for two months. The patient remained free till 45, when a hard red lump appeared in the neck above the clavicle on the right side. This lump was the size of a walnut. At first it scabbed over; then the crust came off, leaving a red mass, which shrank and whitened, leaving a pale scar. Altogether, from first to last, it was present for three

months. It was not painful. When 58 years old the patient had a fresh lump, this time appearing on the right axillary fold. It increased in size till it appeared like an irregularly lobulated tomato. One day, after this had been present for six months, the patient carried a large parcel under her right arm. The same night she was awakened by profuse bleeding from the spot; the hæmorrhage was restrained with some difficulty by her doctor. Patient remained in bad health for nine months after this. From this time onwards the lumps have continued to come and go. But for the last six months their increase in size

Cicatrizing sarcoma.

and number has been very much more rapid, and they have become painful.

The lumps throughout have been at first red and swollen, and in a few months they have shrunk and become white, following much the same course as ordinary cicatricial tissue, but without any puckering of the surrounding skin.

The section, which was demonstrated, showed that the growth is fibro-sarcomatous in nature, consisting of irregularly disposed bundles of fibres with oval, pale-staining nuclei. The epidermis over the tumour was thin and not arranged on papillæ.

The condition of the patient showed some improvement under treatment with the X-rays.

Dr. PERNET reminded members of a case in the *British Journal of Dermatology* reported by Dr. Allworthy and himself.[1] In that case there were some growths very much like those in the present case. The man had a number of the tumours round about the buttock. In Stelwagon's last edition there was a case much like the one Dr. Pernet had mentioned. There were also the tumours of scalp (multiple endotheliomata, &c.), in which the growth looked like those in the case shown. He had seen such a scalp case with the late Dr. Radcliffe-Crocker some years ago. They were put down to sarcoma.

## Case of Idiopathic Atrophy of the Skin.

By J. E. R. McDONAGH, F.R.C.S.

A. E., A WOMAN, aged 32, came up to the hospital complaining of red spots on her cheeks, which were spreading, and appeared so prominent after washing. These spots commenced two years ago while the patient was pregnant—it was her fourth pregnancy, but in the preceding ones nothing unusual in the skin was noticed. The patient's attention was drawn to the condition not only by the red colour her cheeks assumed after washing, but by peculiar sensations (formication) in the skin, which led to scratching.

The lesions were situated on both cheeks, spreading outwards on both sides to the neck and behind the ears; the rest of the face was free. The spots were diffuse, not circumscribed, and arranged roughly in irregular circles; the lesions were red—reddish-brown in the niveau of the skin; the skin itself was wrinkled like cigarette paper, and slightly scaly on the surface. On pressure fine blood-vessels were to be seen, and small brown pigmented areas.

There were leucodermic and melanodermic patches on the backs of both hands and forearms, which appeared last summer (these patches disappeared in winter, but had come out again this summer). There were some similar fainter patches on the neck, which the patient had never noticed.

Recently the patient had complained of itching on the backs of both hands, both on the vitiligo patches and outside, where there

[1] Allworthy and Pernet, "A Case of Multiple Carcinoma of the Skin," *Brit. Journ. Derm.*, 1900, xii, p. 350. (*See* also Kaposi's "Hand Atlas," Taf. 299, "Sarcoma exulceratum regionis trochantericæ.")

were some small, slightly raised papules about the size of a pin's head, and not unlike those of lichen planus.

Whether this condition on the hands was a precursor of dermatitis atrophicans could not at present be settled, but cases had been described of atrophy commencing on areas of leucodermia. The nails were unaffected.

The condition was now the same as when it first appeared, except that the lesions on the face were spreading. From the absence of swelling, pain, or the symptoms of a previous severe inflammation, and that the lesions were not circumscribed, the exhibitor considered that the case fell into the group of dermatitis atrophicans progressiva idiopathica chronica diffusa rather than the acrodermatitis chronica atrophicans of Herxheimer and Hartmann.

## Case of Syphilitic Auto-reinfection.

By J. E. R. McDonagh, F.R.C.S.

E. W., A MAN, aged 38, came up to the Lock Hospital on June 3, complaining of a sore on his penis. The patient had syphilis six years ago, the primary chancre almost surrounding his corona, which healed, leaving an induration which never completely disappeared. The sore was followed by a swelling in both groins, a faint rash, and sore throat; these symptoms cleared up after eight injections of mercury. In the meantime the patient had no recurrence of any sort or kind and no treatment.

Three months ago patient noticed a sore on the right side of the corona; about six weeks later he got a swelling in both groins, a faint rash, and sore throat. When examined he was found to have an ulcer on the right side of his corona, which was markedly indurated. The ulcer was ill-defined, appearing as if two or three had appeared separately, and then coalesced, which was actually the case; the edges were irregular, jagged, but not undermined; the surface was clean and bled easily; the left side of the corona was likewise indurated, but not ulcerated. The inguinal glands were enlarged, hard, and typical of syphilis; likewise were the glands in the neck and the glands at the bends of the elbows.

The patient was covered with a macular rash, and the fauces were inflamed and both tonsils enlarged.

Was this a case of reinfection, auto-reinfection, or an unusual

syphilitic recurrence? That it was not a recurrence was proved by the fact that a sore appeared first and was not followed by the symptoms, which were so typical of early secondary syphilis, until six weeks later. Against reinfection was the appearance of the ulcer and the persistence of the old induration. It was by no means proven whether persistent induration of a chancre hid spirochætæ or not, but this case certainly pointed towards the view that induration was tantamount to hidden mischief which might light up at any time and produce a chancre redux, from which the patient might get a systemic reinfection.

It was a known fact that syphilitic immunity was not an absolute one either to a foreign or a home virus, a fact well brought out in this case.

Within the last year the exhibitor had had two cases of men early in the secondary period whose symptoms disappeared, and Wassermann's reaction became negative after an intra-muscular injection of "606." Four months later the site of the original chancre became larger and *redder*, to be followed by a faint macular rash and sore throat a few weeks later.

The symptoms produced by this auto-reinfection were slighter than after the original infection, and disappeared more quickly under treatment.

The patient now exhibited, after one injection of grey oil, had no trace of a rash left.

Such cases strongly indicated the necessity of removing or destroying a chancre.

## DISCUSSION.

Sir MALCOLM MORRIS said he did not understand whether Mr. McDonagh meant it was a recurrence of a chancre in the place of the former chancre, or whether it was a gumma in the old position which was the commencement of a secondary infection.

Dr. SEQUEIRA had recently under observation a case which bore out in some respects the contention of Mr. McDonagh. The patient, a man, aged 40, had contracted syphilis eight years ago, and had undergone a three years' treatment by mercury administered orally. He had since married, and had two healthy children. The site of the chancre had always been somewhat thickened, and six months ago an ulcer appeared in it. This ulcer had the appearance of a gummatous ulcer, and at the same time a large gummatous swelling had appeared in the neighbourhood of the right tonsil. The latter cleared up under the administration of iodides and mercury, but the penile ulcer was unaffected. Eight weeks ago the patient had two intravenous injections of salvarsan, each of 0·6 grm., with an interval of a week between each. The penile ulcer healed

completely three days after the second injection, but since then the site of the ulcer had again broken down, the immediate cause being sexual intercourse. Dr. Sequeira looked upon this relapse as being due to traumatic irritation of a localized area of infection. The Wassermann reaction was negative, even though the penile ulcer had again become active. Local destruction of the focus by the cautery appeared to be the best method of treatment.

Dr. PRINGLE remarked that only a few years ago such a case would undoubtedly have been claimed as an example of a second attack of syphilis, although the interval of six years occurring between the two attacks would have been regarded as extremely short. He thought that the views enunciated by Mr. McDonagh were perfectly sound, and offered a more satisfactory explanation of the conditions present than those previously held.

Dr. PERNET remarked that primary sores varied very much, so that the mere appearance of the sore was not sufficient to go by.

Mr. MCDONAGH, in reply, said he regarded it as a breaking down of the original chancre, not a second chancre, the auto-reinfection of the patient resulting from this breaking down. The case showed that there was no immunity to the man from his own spirochætæ, or from others. He did not regard this as a true fresh attack (re-infection) of syphilis, because of the appearance of the sore. When he first came up it was ragged, irregular, and broken down in more than one place, and one could still see the induration from the first attack. Induration might persist for a long time, both after mercury and salvarsan.

## Ichthyosis Follicularis in a Woman aged 18.

By J. M. H. MACLEOD, M.D.

THE patient was a stoutish girl of a rather nervous temperament, and her skin trouble dated from infancy. She was the only one of her family who suffered from the disease. The parts chiefly involved were the back of the shoulders, the extensor aspects of the arms and legs, the lumbar regions and the buttocks, the skin of the face, abdomen, palms, and soles being unaffected. The lesions consisted of horny spines or plugs with flat or rounded tops, varying in colour from that of the normal skin to a dirty brown, and occupying the funnels of the hair-follicles of the affected parts. The plugs varied considerably in size, from small spines to plugs $\frac{1}{16}$ in. in diameter on the outer surface. When she was first seen by the exhibitor, the presence of the plugs, especially about the posterior borders of the axillæ and the extensor aspects of the arms, gave the skin a coarse, dirty appearance. The treatment adopted had been warm baths, scrubbing with soft soap, the application of a cream containing resorcin, a drachm, and glycerine of

starch 1 oz., and thyroid gland, 2½ gr. of the extract each night. She had been under this treatment for a month, and a marked improvement had taken place in the appearance of her skin. The majority of the plugs had come out, leaving superficial pits regularly distributed, a thirty-second to an eighth of an inch in diameter, giving to the skin a peculiar cribriform appearance. This case was similar in its clinical features to the type of ichthyosis described by Lesser under the heading of "Ichthyosis follicularis."

## Case of Epithelioma upon Lupus Vulgaris.

By G. Norman Meachen, M.D.

The patient was a man, aged 38, who had suffered from lupus vulgaris for at least thirty years, the right side of the face, including

Epithelioma upon lupus vulgaris.

the nose, being affected. He attended the Blackfriars Skin Hospital in 1876 and 1880, under Dr. Buchanan Baxter, the treatment at that time consisting of local applications of phenol and mercurial plasters

and ointments. There was some destruction of the alæ nasi, but at the time of the meeting the disease was almost quiescent. About four months ago a small pimple appeared upon the centre of the right cheek, which has gradually increased in size until a fungating tumour, 2½ in. in diameter, presented itself, surrounded by an erythematous halo, and causing considerable eversion of the lower eyelid. One small gland was enlarged in the submaxillary region, but Mr. Howell Evans, who kindly saw the patient with the exhibitor upon his admission into the Prince of Wales's Hospital, considered that this was probably the effect of septic absorption only, as the tumour was discharging a purulent fluid at several points on its surface. He had never had X-rays applied at any time. The general health was good. It was proposed to scrape away the growth freely under an anæsthetic.

## Case of (?) Granuloma Inguinale.

By ARTHUR SHILLITOE, F.R.C.S.

THE patient, who had kindly consented to appear before the Section, was aged 25. He consulted Mr. Shillitoe first on March 16 of the present year, and gave the following history: Just before last Christmas he developed multiple sores around the corona, and a bubo which was opened on January 10, and which had not healed on his arrival in England. He left Singapore on February 17, having already developed the three ulcerations still present in his left groin. He was told he had syphilis, and advised to have salvarsan. During the voyage home he took 150 tablets of 3 m each of iodine, together with local applications of pure carbolic, silver nitrate, &c., without any marked effect on the ulcerations.

He had been four years in the East, and only really ill with malaria during the first year. Ten years ago he had albuminuria following typhoid fever. The urine had been periodically examined since, without any fresh appearance of albumin until early in February.

When Mr. Shillitoe saw him on March 16 the urine was acid, specific gravity 1024, and a decided amount of albumin. He had three superficial ulcerations in the left groin, and an unhealed bubo. The bases of the ulcerations, which were not punched out, were glazed, devoid of granulations, and discharging a thin sanious fluid; the edges

were rounded and firm. Mr. Shillitoe did not consider them to be specific, nor could he find other evidence of syphilis.

March 23: Wassermann reaction positive, no albumin, so he was put under mercury.

March 31: The sore not healing, Mr. Shillitoe gave him in addition sanatogen internally and externally.

April 12: The sores were gradually closing, and granulations were appearing, which bled readily. He had increased 1 lb. in weight, now 10 st. 12 lb.; there was a small trace of albumin and herpes preputialis.

April 21, and again on April 24: 0·59 of salvarsan was given intravenously.

April 27: The sores were spreading at the edges.

Many local remedies in addition to iodides. Mercury and "606" having been tried and failed to have any appreciable effect on the sores, Mr. Shillitoe asked Mr. McDonagh to see the case with him, and the diagnosis arrived at was one of granuloma inguinale. Mr. McDonagh was still endeavouring to determine the cause of the disease, but his investigations were not quite completed.

June 7: At Mr. McDonagh's suggestion Mr. Shillitoe asked Dr. Adamson to see the case with a view, if he saw fit, to X-ray treatment, and the result was shown at the meeting.

### Pathological Report by J. E. R. McDonagh, F.R.C.S.

Wassermann's reaction positive March 23, 1911, consequently patient received two injections of "606," which had no effect on healing the ulceration.

When the diagnosis of granuloma inguinale had been made, examinations were undertaken to try to find the cause of the disease. Films were made and stained by the various methods, without finding anything. Several cultures were prepared, but with one exception only staphylococci, streptococci and diphtheroid bacilli were found; the one exception was the growth in the cold only of a dense white fungus on glucose and maltose agar. The growth appeared in three days and then grew fairly quickly. The same fungus was grown on a later occasion. In all probability it is a mould contamination, but it is certainly whiter and not so rich in fruit organs as moulds usually are; further experiments with it can only settle whether it is pathogenic or not. Von Pirquet's and Moro's reactions were negative (tuberculin).

A biopsy was made, and the sections stained with the usual

methods failed to throw any light upon the condition. The corium was infiltrated with cells, chiefly lymphocytes and plasma-cells, which had no special arrangement. The plasma-cells were normal. There was a decided increase in blood-vessels, the morphology of which remained unaltered. There were no giant-cells. Mast-cells increased in number. No sign of a fungus was found.

Since the ulcers did not improve under "606," a protozoal cause can safely be disregarded.

Thinking the cause might be related to some fungus in the actinomycosis or sporotrichosis group, I tried some agglutination tests with a spore emulsion of the latter without success. Unless the fungus obtained bears any relation to the disease, we must still remain absolutely in the dark so far as the cause is concerned.

## DISCUSSION.

Dr. MACLEOD said that in the typical cases of granuloma inguinale which he had seen the appearance was very different from the aspect of the present case. The lesions were usually bilateral, and instead of being punched-out ulcers were papillomatous excrescences. He did not consider that the case belonged to that category.

Dr. GALLOWAY said that some years ago he had had an opportunity of making a pathological investigation of what he called at the time "ulcerating granuloma of the pudenda," from material sent to him by his friend, Dr. Daniels, who was then in British Guiana, a report of which was subsequently published.[1] Mr. Shillitoe's case showed a certain amount of resemblance to these West Indian cases, and also to the cases subsequently reported from the East Indies, including Madras, Assam, the Straits Settlements and other localities. The resemblance, however, was mainly one of position and in the chronic character of the disorder. In Mr. Shillitoe's case there were at present none of the exuberant papillomatous masses which were so striking a feature in the type of pudendal granuloma then described. Mr. Shillitoe's case showed rather what might be the sclerosing type of the lesion on which Dr. Daniels laid such stress in a subsequent communication.[2] The histological appearances in these cases investigated by Dr. Galloway, and of which illustrations were given in the paper mentioned, could not be simulated in Mr. Shillitoe's case, at any rate so far as the gross appearances were concerned. It would be a matter, however, of much importance to ascertain whether the original infiltrative lesions agreed in their histology, especially as to the character of the cells forming the original "granuloma." Dr. Galloway recognized fully that the numerous excrescences of papillomatous aspect might well be an accidental

[1] *Brit. Journ. Derm.*, 1897, ix, p. 133.
[2] *Ibid.*, p. 352.

feature of the disease, and their absence in Mr. Shillitoe's case might be explained by the care and cleanliness of his patient and as the result of treatment. Judging, however, by the general naked-eye appearance, Mr. Shillitoe's case differed very considerably from those originally described under this name.

Dr. PRINGLE remarked that probably the first case of the disease observed in this country had been under his care, after having been under the care of the late Dr. Radcliffe-Crocker. He was a negro employed in a circus. The appearance of that case was very different from that of this one. The ulceration in the case exhibited was much more superficial, the infiltration was less deep, and there was nothing like the exuberant fungating, stinking granulations which were so characteristic of his own case. Although at first, therefore, he hesitated to fall in with the exhibitor's diagnosis, he accepted Dr. Pernet's explanation that the differences in the clinical appearance were probably due to the more perfectly carried-out dressings which the patient's social position rendered possible. The treatment which proved successful in his own case was excision wide of the disease.

Dr. PERNET said he had seen the patient whom Dr. Pringle had referred to. The patient was in one of the surgical wards when Dr. Pernet was dresser to the late Mr. Marcus Beck. There it was considered to be syphilitic. It never responded to the treatment for syphilis, though in those days that treatment was not as efficient as now. Clinically, that case differed from the present one. The patient was a fine specimen of a negro, and in him there were many vegetating growths, very different from the condition of the present patient. Still, in a cleanly patient like the present one, the appearance of the lesion would probably be different from that in a neglectful negro, for in the latter there would probably be much secondary infection. The Wassermann reaction being positive must not be taken as absolutely indicating syphilis here, as it had been found to be positive in lupus erythematosus. Some years ago a case was brought to the Dermatological Society of London by the late Dr. Radcliffe-Crocker. The patient was a young man, who had never been out of England, and clinically it resembled granuloma of the pudenda.[1] The opinion of Dr. Crocker was that it was tuberculous. Some years ago Dr. Pernet had had a case of tropical ringworm under his care. The lesions involved the gluteal cleft area, and there was hypertrophy and ulceration. It looked like syphilis, but Dr. Pernet found mycelia.

Dr. SEQUEIRA had had a case of granuloma inguinale with a large fungating tumour at the angle of the mouth. The patient was a West Indian negro. The case was reported in the *Proceedings* of the Section (1908, i, pp. 57 and 92). The inguinal condition corresponded with that described by Conyers and Daniels. There was much more induration and granulation formation than in the case now shown by Mr. Shillitoe. X-ray treatment proved remarkably successful in Dr. Sequeira's case.

[1] Radcliffe-Crocker's "Diseases of Skin," 3rd ed., 1903, fig. 65, p. 1011.

Dr. WILFRID FOX said he saw a similar case in appearance, but of much wider distribution. The patient came from the North Polar region, where, presumably, he had no chance of acquiring venereal disease. Twice there was a negative reaction to Wassermann, and strong anti-syphilitic treatment produced no effect. X-rays did him a little good for the time being, but gave no permanent result. Cataphoresis of zinc and copper was also tried, but without any marked effect. The only treatment which appeared to be of any use, and which eventually cured the case, was that of extensive scraping and excision of the undermined edges, which was carried out by Mr. Jaffrey. Dr. Fox believed it was a case of septic granuloma.

Mr. MCDONAGH said he cut a piece out of this case and examined it microscopically. He found plasma-cells, the arrangement of which differed from that usually met with in a syphilitic lesion. He had also done the von Pirquet reaction and a Moro test, which were negative. There was also no reaction after tuberculin. He had grown a fungus from the present case, but as he had not yet worked it out properly, he could not say more about it.

## Case of Tropho-neurotic (?) Separation of Nails.

By F. PARKES WEBER, M.D.

THE patient is a rather delicately built but fairly healthy looking married woman, aged 36. About three months ago the nails of all her fingers began to separate from their beds and deep transverse grooves —an exaggerated form of "Beau's lines"—appeared, which now separate the distal (more or less cast off) portions of the nails from the irregular and badly formed proximal portions (that is to say, the newly developing nails). About the same time (i.e., about three months ago) that the nails began to separate a cutaneous eruption appeared on the hands and fingers, which has continued since then. This eruption consists of spreading circular or oval patches of erythema, accompanied by the formation of bullæ. It tends to heal in the centre of the patches, and to advance slowly in curved lines at the periphery. It has been accompanied by a good deal of itching. The illustration shows the condition of the finger-nails and a little of the eruption on the hands.

Somewhat later many of the toe-nails, especially of the left foot, began to be affected in a similar way, but to a lesser degree. Transverse grooves (like "Beau's lines") have appeared on the affected toe-nails, but there is very little separation of the nails from their beds. The first four toe-nails of the left foot and the first two of the right foot are thus affected.

There is no cutaneous eruption on the feet or any part of the body excepting, as stated, on the hands. The patient has generally enjoyed fair health, and has never previously suffered from any affection of the nails, nor does she know of the occurrence of any similar affection in her family. Examination of the thorax and abdomen and of the urine shows nothing abnormal. The Wassermann sero-reaction gives a negative result. Decided improvement in the eruption on the hands has taken place under internal treatment, first by Easton's syrup and then by small doses of arsenic, with the local application of simple boric acid ointment.

Tropho-neurotic separation of the nails.

The affection seems to be a kind of tropho-neurosis. [The bullous nature of the eruption on the hands can scarcely be taken to suggest a relationship with epidermolysis bullosa.] In regard to mental worry as a possible factor in the ætiology, there has been nothing to distress her, she says, except that her husband has been sometimes out of work lately. During the last four months, however, that is to say, for a time covering the whole duration of the nail affection, her menstrual periods have been irregular, and have recurred at much shorter intervals than they used to. The knee-jerks are decidedly excessive, as they are in many "highly strung" neurasthenic individuals.

# Dermatological Section.

July 20, 1911.

Dr. T. Colcott Fox, President of the Section, in the Chair.

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## Epithelioma on Lupus Vulgaris in a Girl, aged 13.

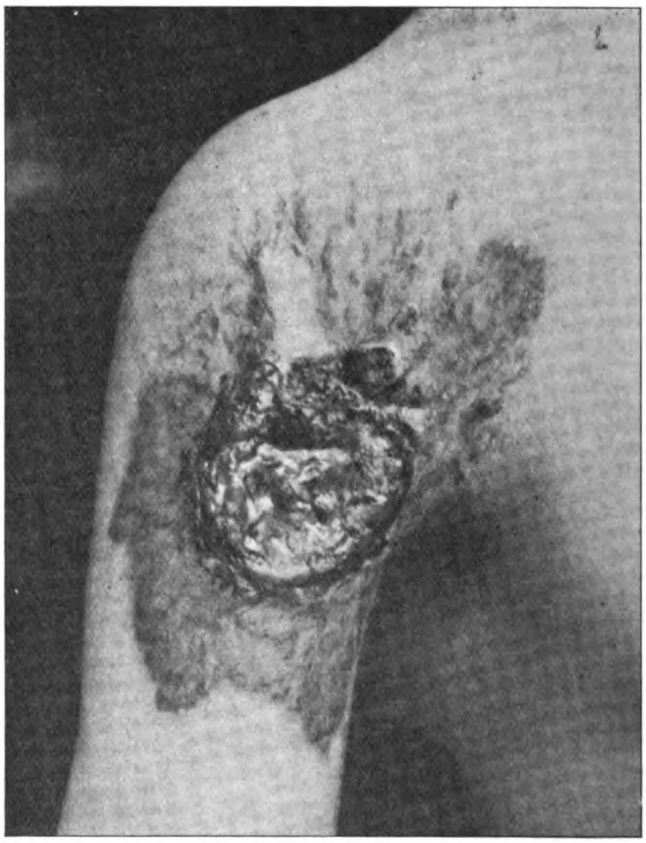
By H. G. Adamson, M.D.

(For C. E. Iredell, M.D.)

A. L., aged 13. The patient's father died of phthisis, but no other history of tuberculosis in the family was obtained. When aged 2 she had measles, and a few months later red patches started on the left shoulder, buttocks, and right leg. These got larger, and patient was taken to various hospitals for treatment. When aged 7 she was operated on at the Westminster Hospital, when all the patches seemed better, but they recurred and varied very much. In March, 1910, she went to Guy's Hospital, and had eight applications of X-rays between then and August, when she gave up attending as she was much better. In May, 1911, she came up again as she was not so well, and had seven more applications of X-rays at intervals, the last being on July 11, 1911. When seen on June 20 there was no sign of any malignant ulceration. Each application of X-rays had been of ten minutes' duration, the anode being kept at 7½ in. from the patient and $\frac{3}{10}$ ma. was run through the tube. No sign of any redness, &c., due to X-rays was ever noticed.

When seen on July 20 patient said she had had a sore place behind her shoulder for three weeks. An ulcer rather larger than a half-crown-piece was present behind the left shoulder and on the upper arm. The floor was covered with a foul-smelling discharge. The margin was wide

and raised, of a dull red colour, and bled easily. The surrounding area was red, and apple-jelly colour appeared on pressure. Several large, hard, movable, painless glands were present in the axilla, but none in the supra-clavicular region.



Epithelioma on lupus vulgaris.

## Acute Pityriasis of the Scalp.

By T. Colcott Fox, M.B.

The President showed *water-colour drawings of the scalp and body of a child*, who was suddenly attacked with acute pityriasis of the scalp and a descending erythemata-squamous macular eruption over the face, neck, greater part of the body and limbs. It started about three weeks

after the scalp had been X-rayed for ringworm, and extended rapidly; it was easily controlled and cured. Several similar cases had been observed in the Downs School of the Metropolitan Asylums Board. An impetigo of the scalp occasionally follows raying in exactly the same way. The explanation probably is that the scalp is previously infected, and then the X-rays sets up a slight active congestion, which renders the soil more vulnerable; a microbe then grows rapidly.

## DISCUSSION.

Dr. ADAMSON said that these eruptions were not uncommon in the out-patient department of a children's hospital independently of X-ray treatment. He was accustomed to call them "acute seborrhœic dermatitis." Always in these cases the scalp had been scaly or crusted over the vertex for a long period, when, suddenly, without apparent reason, an eruption burst out, first on the rest of the scalp, the face and the neck, then over the whole body. The eruption was of the type usually described as "seborrhœic dermatitis," and consisted of oval and rounded patches made up of small, red, follicular, scale-topped papules. The eruption cleared up rapidly on the application of a mild sulphur ointment. The eruption was probably due to a mild form of staphylococcic infection. He agreed with Dr. Colcott Fox that the occurrence of the eruption after X-ray treatment of the scalp was due to the fact that an already existing "seborrhœic dermatitis" of the scalp was given a fresh impetus by the lowering of the resistance of the skin of the scalp by the action of the X-rays. As Dr. Fox had pointed out, a similar thing happened when a child with impetigo contagion was X-rayed for ringworm of the scalp, and there was a rapid spread of impetigo over the whole scalp. A child with impetigo capitis or with marked seborrhœic dermatitis of the scalp should not be X-rayed until these affections had been removed by treatment. As a routine treatment a mild antiseptic should be applied to the scalp after X-raying, and Sabouraud's lotion (tinct. iodine 1 part, methylated spirit 7 parts) was perhaps one of the best.

Dr. MACLEOD said he had on several occasions noted the occurrence of more or less severe seborrhœic dermatitis and ordinary impetigo of the scalp in connexion with the X-ray treatment of ringworm. These forms of dermatitis usually developed about ten days after the exposure as the resistance of the scalp lowered, as the result of the exposure to the rays. To avoid this he found it advisable where any evidence of seborrhœic dermatitis existed, or where impetigo as well as ringworm was present, to thoroughly clean the scalp and to apply a mild sulphur and salicylic ointment previous to the X-ray exposure, and after the exposure to apply daily either carbol-glycerine (1 in 8) or Sabouraud's iodine preparation.

Dr. WHITFIELD called attention to the fact that if patients were seen twenty-four hours or less after X-raying with pastille doses the skin was often quite red. This was certainly not due to heat from the anticathode, as he used a water-cooled tube. It was also almost certainly not due to X-rays, as the redness usually faded very rapidly, and had nothing in common with the X-ray dermatitis. He found it more marked with high than low tubes, and believed it was due to a static discharge.

## Epithelioma of the Back of the Left Hand of Two Years' Duration.

By T. COLCOTT FOX, M.B.

THE patient was a hale old man, aged 77. When first seen there was an ulcer about the size of a five-shilling-piece, but little depressed, and set in a white, hard, solid, smooth bordering. It was diagnosed as a rodent ulcer, on account of its special aspect and long duration without any signs of dissemination. A tiny piece of the border was removed, and microscopically the growth was pronounced to be an epithelioma and not the form known as rodent ulcer. Amputation of the limb seemed to be required for a possible cure, as the underlying parts appeared to be considerably involved. The patient, however, would not part with his arm after seventy-seven years' use. Dr. Worrall has given him two full pastille doses of X-rays, and there is a decided improvement. Some of the ulcer has almost healed, and the solid border is much softer.

### DISCUSSION.

Mr. DAWSON said he had a case in which the condition was considered to be rodent ulcer; X-rays practically cured it, except a small portion, and that was cleared up by the application of $CO_2$.

Dr. PERNET said he remembered a similar case in a sailor, before the days of X-rays, and amputation was done. That patient had been using a largely advertised ointment for a considerable time.

## Macular Atrophy associated with Lupus Erythematosus.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a young lady, aged 26, sent to the exhibitor by Dr. Cave, of Bath, to whom he wished to express his thanks for permission to show the case. All the fingers of the hands were congested and reddened from the tips to the middle; the skin was in addition thickened and the diagnosis of lupus erythematosus was made; a patch of congested skin strongly suggestive of this diagnosis was present also upon the face. There were numerous telangiectases on both the cheeks below the malar eminence. The symptoms thus ascribed to lupus erythematosus had dated from one year, but upon the back of the shoulders and upper part of the trunk there were a number of circumscribed circinate patches, the size of a threepenny-bit, of atrophy of the skin, which was colourless, depressed and shrunken. These had been noted for two years and the recollection of how they had begun was very uncertain and unsatisfactory. There were some of these patches, probably more recent, in which redness was present, and it was a question whether the atrophic areas were the result of earlier lupus erythematosus in these sites.

There was a history of tuberculosis in one maternal cousin, but no personal history of any illness except a dubious arthritis three years ago, which was considered rheumatic. The urine did not contain albumin. Syphilis could probably be excluded.

### DISCUSSION.

Dr. PRINGLE suggested that the atrophy might be the result of the absorption and spontaneous cure of patches of poorly developed lupus erythematosus on the back, although he had never observed atrophic scarring of precisely the same type in the same connexion. The situation was a common one for satellite patches of the disease, as was pointed out many years ago by Sir Jonathan Hutchinson. He did not doubt the accuracy of the diagnosis of lupus erythematosus on the face and hands.

Dr. SEQUEIRA expressed his agreement with Dr. Pringle. He had under care at present two cases of lupus erythematosus, in which characteristic

lesions were scattered over the shoulders in exactly the same area as in Dr. Little's case. One of the patients had deep scarring in that situation.

Dr. WHITFIELD pointed out that the area involved was that which would be only slightly covered or not at all by a summer blouse, consequently the sun might burn through. The sun might not cause the condition, but it might determine its site.

Sir MALCOLM MORRIS said he had seen the condition develop as the result of exposure to the sun's rays. When lupus erythematosus was imminent such a cause might determine the situation in which it appeared. He had seen a case of lupus erythematosus on both cheeks which was almost well, but upon exposure to the sun another attack developed on an exposed part, the original lesions remaining well.

The PRESIDENT said he could understand a source of irritation to the skin determining where the lupus erythematosus should appear, but he did not think such irritation was causative. The condition was said to be rarer in hot climates.

MR. DAWSON said he saw a distinct case of the condition in a Territorial a short time ago. He was in camp last summer, when he got badly burnt on the nose and face by the sun, and since that time he had suffered from lupus erythematosus in that region.

Dr. GRAHAM LITTLE, in reply, said he did not regard the condition at first as lupus erythematosus. It was not red at all, and the redness now seen was only temporary.

## Folliculitis Decalvans in a Young Lady aged 19.

By E. G. GRAHAM LITTLE, M.D.

THE patient was at present entering the profession of nursing. She had begun to shed the hair five years ago, and the process had continued slowly but progressively since then. The destruction of the hair had apparently taken place by inflammation of individual follicles; there were no wide areas of baldness, but a diffuse irregular destruction over a large part of the scalp. In individual instances a thickening and slight redness could be seen of the orifice of the diseased follicle, so that a tiny collarette could be identified surrounding the hair, and it was this circumstance which, perhaps, justified the name given to the disease. There were no large areas of cicatricial atrophy, as in the "pseudopelade" of Brocq. There had, on the other hand, never been any

pustulation of the follicle, as in the type associated with Quinquaud's name, and it was difficult to choose between the possibilities of nomenclature in these cases.

The prognosis was, in the exhibitor's opinion, bad as regards ultimate restoration of hair, and he invited opinions on this point.

Stumps had been removed for examination, and no fungus had been found; the possibility of an endothrix ringworm had been borne in mind. The Wassermann reaction had also been tried and found negative.

Dr. WHITFIELD remarked that in Brocq's pseudo-pelade every hair within the affected area was destroyed as the process reached the follicle. In the present case there was a rather diffuse baldness with some hairs persisting in the affected areas. He agreed with those observers who thought that this was not a cicatricial case. Dr. Whitfield believed from a histological study that the pseudo-pelade in small circumscribed areas was in reality a herpetiform sclerodermia of the scalp, and drew attention to the fact that in Brocq's exhaustive article on the subject one of the cases mentioned had sclerodermia elsewhere.

## Case for Diagnosis.

By E. G. GRAHAM LITTLE, M.D.

THE patient was an engine-driver, aged 60. Up to twelve months ago he was in good health. At that time his skin began to become deeply pigmented on the neck, face, and dorsum of hands, and he lost weight rapidly, so that he lost in the twelvemonth just 6 st., his previous weight having been 14 st. 4 lb., his present weight a little over 8 st. His skin was generally pruritic, especially about the chest and back; careful search for pediculi proved fruitless. The pigmentation at present was deepest on the face, neck, back of hands, forearms, axillæ, shoulders, abdomen, about the arms, in the popliteal spaces, and on the knees. The pigmentation was patchy, not universal; in its deepest tint it was the colour of walnut stain with a slightly yellowish blend. Pigment had apparently been deposited along the line of flexure of the palm and slightly on the mucous membrane of the lips. The conjunctivæ were slightly yellowish, but not the lemon yellow of jaundice. The liver

was much enlarged, its edge coming down to the umbilicus; there were no excrescences to be felt on its surface or edge. There was no abdominal swelling and no œdema. The pulse was well sustained and firm. There was albumin, a trace, but quite definite, in the urine, but no sugar; specific gravity 1012. Gmelin's test for bile proved negative. The eyebrows were thin, but the hair on the scalp was not scanty for his age. He complained of no pain or inconvenience except itching; there was no nausea or vomiting, no history of jaundice. The patient in some respects showed a strong general resemblance to Dr. Sequeira's case shown at the meeting of the Section in November, 1910.[1]

The pigmentation was not unlike that of acanthosis nigricans, but there was no thickening or rugosity of the skin and no general eruption of warty growth; there were a few quite flat, possibly warty tumours on the left forearm, about five in all. These were not, perhaps, enough to allow of the diagnosis of acanthosis nigricans being definitely offered, but it was a possible explanation that the pigmentation had preceded the warty development. The sites of pigmentation were those of acanthosis nigricans. Addison's disease had been thought of, but the absence of all visceral pain and the excellent pulse seemed to contradict this suggestion. It was hoped to admit the patient to St. Mary's Hospital and report later, when a more complete examination of the blood and other aspects of the case would be made.

Dr. SEQUEIRA said that in the remarkable case of pigmentation which he showed some time ago he had had the advice of Dr. O. Grünbaum in determining whether the adrenals were affected. The blood-pressure was carefully observed, and then adrenalin was administered. If the pigmentation were due to adrenal insufficiency the administration of adrenalin would raise the blood-pressure, but it could not do so if the adrenals were normal. In Dr. Sequeira's case the administration of adrenalin had no influence on the blood-pressure. This patient also had a remarkable diminution in the red corpuscles of the blood with poikilocytosis. Under subcutaneous injections of arsenic he had greatly improved.

[1] *Proceedings*, p. 26.

## Case of Syphilitic Affection of the Eighth Nerve.

By J. E. R. McDonagh, F.R.C.S.

L. M., FEMALE, aged 35, came up to St. Bartholomew's Hospital, July 4, complaining of a rash on her legs. Two years ago the patient contracted syphilis, and was treated for eight weeks with inunctions in the General Hospital, Yarmouth. Before she was admitted the secondary rash had spread all over her body, and while the patient was in the hospital she developed double iritis.

Two months after leaving the hospital condylomata appeared around the anus and between the toes. Since then she had had no treatment of any sort or kind. The present rash was of nine months' duration, and limited to the arms and legs, in parts scaly and psoriasiform in character, while elsewhere, especially around the ankles, were grouped circular lesions of papules, deeply pigmented, characteristic of a recurrent syphilide. On the sole of the right foot was a painful superficial ulcer with much inflammation around.

On examination the pupils were found equal, not quite circular, the left less so than the right, and both reacted to light and accommodation. There was syphilitic leucoderma of the neck. It was noticed when addressing the patient that she did not seem to hear very well, and on inquiry she stated that she had been deaf on the right side for six months. This deafness had come on gradually and was getting worse, and at the same time as it appeared noises in the ear were experienced, and the patient was much troubled with attacks of giddiness which prevented her from going out. She always had the feeling as if she was going to fall forwards, which really happened on one or two occasions. The giddiness and vomiting were worse on getting up in the morning, and the latter occurred during the day, always quite irrespective of food. These symptoms, except the giddiness, were increasing in severity. When first seen there was slight nystagmus, which had since disappeared. Menstruation was regular, and the last time was three weeks ago.

Examination of ears showed stenosis of left external auditory meatus of old standing; no defect of hearing; marked reaction to the caloric test in one minute at 115° F.; patient fell to the right; electrical reactions

normal. On the right side hearing was diminished; no artificial Rombergism or nystagmus was produced by syringing for three minutes with water at 118° F.; the electrical reactions of the vestibular nerve were sluggish, but had not quite disappeared. The result of the examination points to inflammation of the trunk of the eight nerve on the right side affecting both its cochlear and vestibular branches. The condition was not a very uncommon one, and always occurred in the second stage of syphilis and usually within a year after infection. It was usually overlooked, but had lately been brought to the front since observers had noticed its occurrence after the use of "606" and looked upon it as a toxic effect of the drug. Others, again, had recognized it as a not unusual symptom of syphilis, and rightly so too, since this patient had never had "606," and it was a condition which was amenable to treatment, be it mercury or a second injection of "606." Therefore it must be regarded as a syphilitic manifestation of the nature of a neurorecurrence, and it could only be avoided by early and adequate treatment.

For the case the exhibitor was indebted to Dr. Adamson, and for the careful examination of the ears to Mr. Sydney Scott.

## DISCUSSION.

Dr. WHITFIELD said he had recently had a patient in hospital in whom deafness and giddiness had come on very acutely about six months after infection. The patient was under active mercurial treatment at the time, and all the other, rather severe, symptoms had disappeared very favourably, so that it was a great disappointment when the ear symptoms had developed. The patient was taken in and infused with salvarsan intravenously, but it had absolutely no effect, either beneficially or otherwise, the patient remaining practically stone deaf in both ears.

Dr. SEQUEIRA said that the reason dermatologists had had their attention called to this condition was that patients suffering from chancre and early secondaries were admitted into the wards of a hospital for the administration of salvarsan, whereas formerly they were all treated as out-patients.

Sir MALCOLM MORRIS said that when he was house-surgeon at the Lock Hospital there was a number of patients who were detained, and among them every now and then were seen cases of giddiness, leading to falls. At that time, owing to imperfect knowledge, the seizures were supposed to be epileptic, and not to be connected with the syphilis.

## Specimens of Hair from an Aboriginal Indian Girl.

By J. M. H. MacLeod, M.D.

THESE specimens had been sent by Dr. Minett from the Government Bacteriological Department of British Guiana, and came from the Rupununi district. The hairs were characterized by the presence on the shaft of hard nodules varying in size from minute specks like particles of grit up to small pin's head, tending to be oval in shape, brownish-black in colour, and situated either on the side of the shaft like a nit or forming a concretion around it. According to Dr. Minett's note they affected entirely the extra-follicular portions of the hair. They varied in number from one to ten or more, and were situated close to each other or at irregular intervals. They were entirely outside the hair-shaft at first, but their presence eventually caused a breaking up of the cuticle, a fraying of the cortex, and rendered the hair liable to fracture opposite them.

On microscopical examination of the hairs softened in liquor potassæ the nodules were found to consist of large spores of a peculiar fungus which was recognized as probably that to which Behrend has given the name of *Trichosporum giganteum*. In the small nodules the spores had a strikingly regular arrangement. At the periphery of the nodule there was a palisade layer of oblong spores from 10 to 12 $\mu$ in length arranged at right angles to the hair-shaft, while next the hairs the spores were irregular and tending to be polygonal. In some instances these had a peculiar fanlike arrangement of rows of spores radiating from a central base. They appeared to be held together in a mass with some viscid cement substance which formed a sort of capsule enclosing them, and they presented a yellowish appearance owing to a diffuse colouring matter in the protoplasm and the presence of pigment-granules. In the larger nodules the spores were not so marked, and they formed a mosaic or honeycomb-like arrangement with a few oblong regular spores at the periphery. No definite mycelial threads were detected. A number of attempts were made to cultivate the fungus, a culture being obtained on maltose agar of a chocolate colour somewhat suggesting that of an endothrix ringworm. This culture is possibly that of the fungus but is not yet fully worked out, and the exhibitor will report at a future meeting further experiments on the subject.

The condition was obviously a form of trichosporosis and probably that type which is similar in the valleys of the Cauca in Columbia, and is known there on account of the hardness of the concretions as piedra. It has already been described in this country by Sir Malcolm Morris, and is closely allied, though possibly due to different species of fungi, to piedra nostras (Unna and Behrend), tinea nodosa (Crocker and Pernet), and possibly to chignon fungus (Beigel and Fox), but is quite distinct from the condition known as leptothrix, which affects chiefly the hairs of the axillæ.

The exhibitor is indebted to his clinical assistant, Mr. F. C. Davies, for valuable help in cultivating the fungus.

Mr. BEDDOES asked whether the condition was that first described by the well-known writer Beglay. He believed the word "shingle" was applied to it because the workers, when passing it through the fingers, said it felt as if sand was upon it. He looked the matter up some years ago and found that a fair number of cases had been reported in England, and certainly in Europe.

## Alopecia Areata in a Syphilitic Subject.

By J. H. SEQUEIRA, M.D.

THE patient, a healthy-looking man, aged 47, contracted syphilis three years ago. He was treated with pills in Glasgow, and has continued under treatment intermittently ever since the primary sore was noticed. The primary sore upon the penis broke down about six months ago, but healed up soon after.

About the same time a patch of baldness appeared, and this gradually extended until it was nearly 3 in. across. During the past month a number of smaller bald patches have developed. When shown there was a large bald area 3 in. by 2½ in., occupying the left vertical region. This patch, which had been quite denuded of hair, was covered with fine white down. Over the occipital and temporal regions there were numerous small bald areas, none of them larger than a shilling. The latter more closely resemble the true alopecia syphilitica.

The Wassermann reaction was positive.

The exhibitor thought that the case would be of great interest to the members in view of the fact that Dr. Sabouraud had reported similar cases. Dr. Sequeira had had a number of cases of alopecia

areata examined by the Wassermann test, but this was the only instance in which a positive result had been obtained. He was inclined to think that it would be better to call the condition alopecia areata in a syphilitic subject rather than alopecia syphilitica.

## Case of Ringworm of the Toe-nails.

By ARTHUR SHILLITOE, F.R.C.S.

THE patient, a native of India, and aged 36, stated that the condition of the toe-nails started in the right big toe when he was in Europe in 1898. During the years 1900 to 1907 he appeared to have had a good deal of malaria. In 1901, and again in 1910, the skin of palms, soles and insteps peeled off with an intense burning sensation, the eruption on each occasion starting in large rings.

In February of the present year he was informed that he undoubtedly had syphilis, and was treated for about six weeks with mercury ionization, and again from April 8 to the end of the month. He was badly salivated without any amelioration of the condition of the insteps or nails. He never, so far as he knows, had a chancre.

July 1: All the toe-nails are affected, being brittle, friable, and of a dirty grey colour, together with some peeling of the skin of the insteps.

No mercury having been administered since the end of April, Mr. McDonagh was asked to make a Wassermann blood test. The result was negative, and in addition he took scrapings of the nails, and later sent the following report:—

"Examinations of nail scrapings with KOH showed an endothrix ringworm. Attempts at cultivating the same failed, and only *Penicillium glaucum* grew in two tubes on glucose agar."

There has been considerable improvement under treatment.

Mr. MCDONAGH said he obtained the fungus from scraping the nail of the big toe. There had been patches in the groin. The patch on the hand came subsequently to that on the feet. For treatment, after the scraping, linimentum iodi and 20 per cent. caustic potash (æq. partes) were applied.

## Case of Corymbose Syphilide.

By ARTHUR SHILLITOE, F.R.C.S.

THIS gentleman, aged 26, acquired syphilis in November, 1910, and three weeks later was placed under treatment. At the end of December he had a very general papular syphilide. He was first seen on June 20, when the remains of the papules were still evident. Each papule was surrounded by a ring, the size of a florin, of small follicular papules. On July 11 he received an intravenous injection of "606." The eruption was much improved, but enough remained to show the somewhat unusual form it assumed.

### DISCUSSION.

Dr. ADAMSON asked whether there was any leucodermia cervicis, which he said was so often found associated with this condition.

Mr. SHILLITOE said it was very well marked, though when first seen on June 20 it was only present in the form of a dark pigmented collar, the achromic areas not appearing until after the use of the "606."

# PROCEEDINGS

OF THE

# ROYAL SOCIETY OF MEDICINE

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***VOLUME THE FOURTH***

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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1910-11

## ELECTRO-THERAPEUTICAL SECTION

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1911

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*Corrigendum.*—On p. 13 the date of the meeting should be November 18, instead of October 21.

The Council think it right to state that the Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W.

# Electro-Therapeutical Section.

October 21, 1910.

Dr. H. LEWIS JONES, President of the Section, in the Chair.

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## The Thermal Effects produced by High-frequency Currents, and the Therapeutical Uses of Diathermic Treatment.

By FRANZ NAGELSCHMIDT, M.D. (Berlin.)

HIGH-FREQUENCY currents are somewhat discredited in England after having been received with great enthusiasm. Too much was expected of them, and, moreover, the apparatus is deficient and the technique weak; even now we see apparatus allowing of only monopolar applications. The results of d'Arsonvalization were at one time supposed to be due to suggestion. This view has entirely changed, since d'Arsonvalization can now be produced in any required intensity by the methods of diathermy. D'Arsonval observed occasionally, in high-frequency treatment, "une chaleur désagréable." Now we know that it is impossible to use high-frequency treatment without producing diathermy, and that high-frequency treatment is only efficacious when the diathermic effect is sufficient. In cases where a small degree of heating of the tissues, or of the whole body, is sufficient, ordinary high-frequency treatment gives good results. But in other cases a greater amount of energy and a strong diathermic effect is necessary. Diathermy is one effect of high-frequency currents of all kinds, but it has been overlooked for more than twenty years, or only noticed as something accidental; whilst for us it is the chief and primary action.

D'Arsonval's currents and diathermic currents are not identical. In the first we transform an ordinary alternating current into a current of high tension and high frequency. High tension is necessary for the production of effluves, fulguration, &c.; but at the moment when the human body is introduced into the circuit the resistance is so much

increased that the tension falls from 100,000 or 150,000 volts to 2,000 volts or less, and a great part of the energy disappears as heat, since we find that the amperage does not increase correspondingly. In diathermy we use a tension of only 200 to 800 volts, and an amperage up to 2½ amperes, whereas in d'Arsonvalization we never get more than 200 or 300 milliamperes. I may be allowed to make a small comparison. Imagine that a big cannon is shot off once every hour; the noise is very loud but short, and speedily silenced; there are a few oscillations of high potential with a long empty interval before the next shot. Compare with this a rifle, shot off every second. The oscillations are weaker and die out equally. But the air still continues to oscillate till a fresh shot is heard. The oscillations are superimposed on each other, are of low potential, and are more or less continuous. On one side we have high potential, short wave duration and long interval; on the other side low potential, persistent waves, and no interval. The former is d'Arsonvalization, the latter diathermy.

It is useless to produce a high potential if it falls immediately the body is interpolated, but it is very important to have a high amperage. I have designed a special diathermic apparatus, which has been constructed for me by Messrs. Siemens Bros., of London; it consists of an oscillating circuit, condenser, spark-gap, and self-induction, giving about 1,500 sparks per second. The secondary coil can be brought nearer or further from the self-induction coil which produces the high-frequency current to be applied to the patient.

Let me show you a little diathermic experiment. I take a piece of raw meat—a piece of liver, for instance—and take a slice of 1 in. diameter or thereabouts. I put an electrode at either side and turn on the current. You will see no spark, and yet, as you notice, the meat begins to smoke, a little white edge is forming, and it begins to crackle. After thirty seconds I switch off the current. I cut the piece of liver through, and you see that between the electrodes the whole slice is quite hot and thoroughly coagulated. But you notice something more: the coagulated zone corresponds exactly to a cylinder whose terminal surfaces have the size and form of the electrodes. This proves that the diathermic effect can be localized in the tissue, and extends evenly to a considerable depth.

This localization also takes place in a free liquid. Here is a rectangular glass tray, the bottom of which is covered with white of egg. An electrode is placed at two opposite corners, and I pass a fairly strong high-frequency current through the albumin for some minutes. You

see how a small coagulation-clot is formed along the line joining the electrodes. This clot begins in the middle and is separated from each electrode by a considerable layer of fluid albumin. If I allow the current to flow still longer, the clot gradually grows larger towards the electrode.

I may show you another similar experiment with the same electrodes but a different strength of current. In this case the coagulation takes place immediately at the electrodes, on the surfaces which face one another, and the coagulation gradually progresses towards the centre. This difference in behaviour is easily explainable. With a weak current and gradual rise of temperature, the metal electrodes cool the layer of albumin in contact with their surface, whereas in the centre of the liquid, where there is no such cooling, the greatest amount of heat is produced, and therefore the greatest coagulation. With a stronger current, however, the greater intensity of current at the electrode warms the metal, while in the centre there is some spreading out of the lines of force, resulting in less heat and somewhat later coagulation.

In a diathermic application you do not get any of the phenomena which have hitherto been associated with the idea of electric action—no prickling sensation, no stimulation of nerve or muscle, or electrolysis and ionic action. Another important point is that the skin does not offer a resistance very different from that of the other tissues. You all know how easily the continuous or the ordinary alternating current enters a wound or a surface deprived of skin, and how great is the resistance through the skin. It is quite otherwise with the high-frequency current. There is no entrance resistance. It is just the same whether you apply it to the skin or to a granulating surface, if you use moist electrodes or metal electrodes, if the skin is wet or dry. Of course you must have good contact between the electrodes and the skin, so that there is no interposition of air. The conductivity for various tissues is almost the same, and hence the possibility of forcing the current to go the nearest path from one electrode to the other. This gives us the means of localizing these currents in the most exact way.

Another point is the fact that the structure of the tissue affects but little the conductivity to a high-frequency current. Take a square piece of steak, two of the sides parallel to the course of the muscular fibres. You know there is a great difference in the resistances of the longitudinal and the cross sections to an ordinary current. For the high-frequency current, however, we find the resistance is the same for both directions. Take, however, a piece of steak cut in hour-glass shape; you will see

that the heating is the greater at that part which has the smallest section, since here the lines of electric force are condensed. If, however, the surface of one of the electrodes is smaller than the smallest section, you may get coagulation under the smaller electrode before you get it at the narrowest part of the muscle. This has a very important practical application. If you take the two handles in your hands you will find the first sensation of heat in your wrists, since the lines of force are closer together there. So you see that the resistance of the human body is not an entrance resistance, or a resistance of structure, but that for high-frequency currents, and especially for diathermy, we have to consider only the mass of tissue and the area of the section traversed by the current.

We may now pass on to the clinical applications of diathermy. We must distinguish two classes of cases: in one group we want to elevate the temperature of tissues to the coagulating point in order to destroy the tissues; in the other group we wish to raise the temperature only slightly so as not to diminish their vitality. The results of the two methods are very different: in the first group destruction—death of the tissue; in the second increased vitality and function.

Destruction is wanted chiefly in tumours and infected tissues. Theoretically we can coagulate tumours of any size, but practically we seldom make use of diathermy to a greater depth than 1 or 2 cm., since we cannot tell if there may not be inside the tumour an organ, a nerve, or a blood-vessel, an intestine or the like. We generally proceed by coagulating the surface first and scraping away the coagulated mass, thus going gradually deeper from one layer to the next. Of course we have the same difficulty as in other operative procedures in deciding where the pathological tissue ends, or where further destruction is impossible. In a cancer of the shoulder, for instance, the wall of the brachial artery may be diseased, and it is of course impossible to destroy the tumour without destroying the artery. We can dominate the hæmorrhage, but we cannot avoid gangrene of the arm. The same difficulty is met with in cancer of the intestines if a loop of the bowels is involved. Thus some inoperable cases remain absolutely inoperable.

I wish to point out quite clearly that diathermy is not in any way a specific method of cancer treatment. The high-frequency electrode has no miraculous action, but represents a new surgical instrument of the greatest use in a number of special cases. The method is not to be confounded with "fulguration," which is now greatly discredited, nor with Forrest's needle, which is a method of fulguration with short and very hot sparks.

Diathermy offers the following advantages :—

(1) It enables us to make the smallest, as well as the most extensive, operations with a minimal loss of blood. This is important for weak and exhausted patients, especially when they are suffering from hæmorrhagic or pulsating tumours or ulcers.

(2) If we have an infected mass—a cauliflower tumour of the cervix, for instance—or hypertrophic tonsils filled with plugs of streptococcic matter, or intraperitoneal glands, or tuberculous glands, we may coagulate all those organs together with their infectious contents, kill the bacteria, and coagulate the toxins before removing them. In a hysterectomy, for instance, the abdominal wall is opened, but before opening the peritoneum the whole vaginal part of the tumour is thoroughly coagulated by diathermy. When the peritoneum is opened you have to do with a perfectly harmless and sterilized tumour.

(3) In operating on a cancer, a lupus, or a scrofuloderma, we never know how often our knife cuts through layers or proliferations of cancerous cells or lymph-vessels filled with tubercle. There is always danger of transporting bacilli or cancerous cells into the newly-opened lymph-channels. Here the great advantage of diathermy comes in, since it coagulates and seals the lymph-channels and blood-vessels.

(4) Some operations inaccessible to the knife are accessible to diathermy—for instance, a cancer of the bones of the face is often inoperable because it is impossible to remove the diseased bone. But the bone is just as accessible to diathermy as soft tissues. Or take a case of tuberculosis of the eyelid : you can operate without danger in the near neighbourhood of the cornea.

(5) After a diathermic application there is a zone of hyperæmia around the area of destruction. In this zone we observe a very important secondary effect of diathermy—viz., the stimulation of the connective tissue. This reaction of the tissues consists in hyperæmia with an enormous flow of lymph which comes on a few hours later. This flow flushes out all contents of the lymph-vessels, pathological cells, bacteria, toxic matters and the like, and counteracts the absorption of the products of destruction remaining in the wound. Thus, soon after operation, all symptoms of toxæmia and cachexia speedily disappear. In certain cases the loss of liquid needs to be repaired by giving the patient quantities of liquid to drink, or even giving an enema of normal saline solution.

Diathermy seems to have great advantages in the surgery of the nose and throat. The electrode may be introduced cold and without pain, and is easily dirigible and localizable in its action. I have had very

good results in treating tuberculosis of the larynx after local anæsthesia or laryngotomy. The operation only takes a few minutes, and the same results may be obtained in lupus of the skin. I no longer treat tuberculous affections with Finsen light, since I can do in ten minutes all that I used to do in 500 or 600 sittings of an hour each.

It is impossible to enumerate all the surgical applications and indications for diathermic treatment. The chief work is still to be done by the surgeons themselves who may accept and try this new instrument. It is still more difficult to give an idea of the internal applications of this method in medicine. Diathermy is not a panacea; but if you consider that thermotherapy has been applied, with more or less success, in a vast number of diseases, you will understand how wide is its application when we are able, as now, to localize the heat in any position and at any depth. There is a vast difference between applying the heat outside to the skin with a penetration of one or two millimetres at the most, and being able to warm the kidney or the liver right through without burning the skin. It is the characteristic feature of high-frequency currents that millions of heat-centres are formed by the molecules through which they pass. As regards the physiological effects of the diathermic current, we can distinguish first a very marked local hyperæmia, which persists a long time after the application. Secondly, there is an elevation of the local temperature persisting for several hours. This heating affects every cell, every granule of the protoplasm, the nucleus, and every molecule of the tissue. This represents an increase of energy; not an energy produced by destructive action of the tissue, but brought in from outside and setting up a new series of secondary results: acceleration of metabolism in the cell, intensification of the fermentative action, and withal increase of function.

As a result of diathermy there is an increase of the glandular secretion, and in other organs—for instance, the heart—there is accelerated action. For instance, you may diathermize the heart of a rabbit without heating it, and obtain an acceleration of its action, so that the beats are twice as fast as normal. No such acceleration of the heart is possible by any chemical means or intoxication for more than twenty to forty beats, and in all those cases there is a reaction with more or less debility. Not so with diathermy. If you cease diathermizing the heart it resumes its normal rhythm after a few minutes, even beating a little slower, with a slightly increased amplitude.

The action on the circulation is most marked. It appears that the normal circulation is less influenced than the pathological. We can

diminish the blood pressure. Here is a trace of the pulse-curve taken before and after treatment. You see before treatment the maximum of pressure is 230, while after treatment it is 198. There is thus a diminished pressure of about 30 mm. of mercury. In the discussion on my paper at Königsberg, Professor Schreiber confirmed my results, and Professor Rautenberg reported that he had seen the blood-pressure fall from 200 mm. to 120 mm. and remain at the lower pressure. He has seen cases of severe œdema, treated by digitalis without result under regular observation for years, which were so much improved by diathermic treatment that he believed it to have the greatest value.

Diathermy has a very marked power in appeasing pain. It is indicated in neuralgia, sciatica, lumbago, migraine, and gives especially good results in tabes. One must have seen a tabetic patient brought for treatment, with apathetic features, vomiting, bowed down by pains; the current is applied to the stomach and on the painful parts, and after a few minutes he ceases to vomit, the pains are gone, he is able to take food immediately. This I have observed in more than 80 tabetic patients over a period of more than four years, and have obtained those results in 89 per cent. of the cases. Of course the tabes is not cured, but the patients are greatly relieved and return again when their pains recur.

Diathermy has a very marked antiphlogistic power. It is used by dental surgeons for pyorrhœa alveolaris. Sometimes we get good results in pneumonia and pleurisy, the crisis of pneumonia occurring a few hours after treatment, and the adhesions of pleuritis adhæsiva being dissolved.

Gout is also very amenable to diathermic treatment. You may see a gouty tophus highly inflamed, impossible to bear a touch; you make a diathermic application, using a jet of warm water as an electrode, and in a few minutes it will be perfectly painless, so that you can apply a metal electrode to it. The pain does not return, the swelling disappears in one to two days, and it is unusual to get a recurrence in the same spot.

Joint diseases, especially acute joint diseases, are very much benefited. The heating of a gonorrhœal lesion, for instance, kills the gonococcus, removes the pains, and so relieves the patient. Chronic diseases of the joints, however, are less affected.

In operating with diathermy, for instance on a cancer "en cuirasse," where you have to apply the heat very close to the pleura, you observe that from the moment that the pleura is heated the patient takes in a very deep breath. This led me to try the diathermic treatment in asthma, and I had very good results. After one or two treatments the expectoration is facilitated, patients who coughed for hours in the

morning to bring out a little phlegm now expectorate great masses of liquid. They can lie down at night and experience great relief. Slight cases have been cured after a few sittings, while in other cases the relief was only of short duration.

I have had two cases of chronic nephritis which I will report without trying to base any theory or generalization upon them. One was that of a lady who had lived in the Tropics and had been attacked by malaria as a young girl. She developed nephritis of a slight degree. She married, but at the end of the pregnancy there was an aggravation of her state of health, and she had a very severe attack of eclampsia. She came to me when her child was four years old. At the beginning of the diathermic treatment her urine contained 3 to 4 per 1,000 of albumin, cylinders with granulations and blood corpuscles, accompanied by œdema of the legs. The general state improved very quickly after a few treatments, but the amount of albumin remained the same after terminating the treatment six weeks later. She travelled for some time and came back after a year. She had still 1 per 1,000 albumin, some cylinders, cells, &c.; now, six months later, I receive the news that the albumin has entirely disappeared for four weeks and that she feels perfectly well.

The other case was that of a young lady, aged 16, in a very serious state. She came with 40 per 1,000 of albumin and severe œdema of the legs and face. She was treated in the same way. The amount of albumin fell rapidly to 6 per 1,000, remained stationary for some months, and at the present time, one year later, is zero.

## DISCUSSION.

The PRESIDENT (Dr. Lewis Jones) said that thanks were due to Dr. Nagelschmidt for a lucid and instructive demonstration. At St. Bartholomew's that afternoon they had had the advantage of seeing Dr. Nagelschmidt perform operations with his apparatus upon three cases. One was an extremely difficult tumour of the posterior surface of the soft palate. This was treated and removed without bleeding. The second was an extensive nævus of the tongue, and the third a case of enlarged tonsils. The procedure was extremely rapid and simple, and, so far as one could tell at the operation stage, was successful.

Dr. A. HOWARD PIRIE said that he would have liked to have heard something more about the treatment of obesity by this method. Was the heating effect upon the patient similar to that which took place in fevers, when there was wasting? Also, was the same effect possible with the heart? Was the organ made to beat faster because it was heated by the passage of the current through it? The speaker read a note from Mr. Faulder, who had had to leave the meeting, asking whether the treatment could be applied in cases of cancer of the œsophagus.

Mr. DEANE BUTCHER inquired how the lecturer obviated the development of keloid, which, as was well known, was apt to occur in the scar-tissue of burns. The introduction of what might be called an aseptic knife—a knife which did not open the blood-vessels or the lymph-channels to infection—was, in his opinion, most important, and would be classed as one of the most wonderful developments of modern surgical technique.

Dr. CURTIS WEBB asked where the indifferent electrode was applied in cases in which the nasopharynx was involved. He understood Dr. Nagelschmidt to say that the treatment was of great value in such cases as neuritis of the sciatic nerve or in a rheumatic joint. How often should the treatment be applied in such conditions—with daily sittings, on alternate days, or once a week? What length of treatment and what amperage should be given in these medical cases?

Mr. J. HALL-EDWARDS said that when he saw these experiments in Paris he was greatly impressed by them. He wished to know whether, in applying the current for medical purposes, there was any danger of producing such a coagulation of the tissues as to be an inconvenience to the patient or to give rise to bad symptoms. The very lucid demonstration would stimulate some of them to repeat these experiments, and, he trusted, with good results.

Dr. G. B. BATTEN said that Dr. Nagelschmidt had not mentioned the matter, but from the literature that was rapidly arising around the subject it seemed that a good deal had been done in the treatment of aneurysms. It seemed rather a bold procedure to attack an aneurysm by diathermy, and he would like to ask whether Dr. Nagelschmidt had attempted it at all, either by means of the coagulation method or by taking advantage of the more medical effect that he had described.

Dr. WILFRED HARRIS asked a question as to the maximum strength of current which could be used with safety. He noticed that Dr. Nagelschmidt had stated it to be dangerous to go above one or two amperes. Dr. Doyen, of Paris, used from ten to fifteen amperes, apparently without ill effect. He also wished to ask what form of pneumonia it was that relapsed after crisis. He was not acquainted with a relapsing type of pneumonia.

Dr. HORACE MANDERS said that an experiment conducted by Dr. Nagelschmidt just before the meeting commenced seemed to him a very important one. Two electrodes were placed in the white of an egg at a certain distance apart, and Dr. Nagelschmidt was careful not to put on a large current, for the reason that the small current, applied for some time, showed the first appearance of coagulation to occur half way between the two electrodes. The coagulation occurred, therefore, at what was in reality a potential node. They all knew perfectly well that in an ordinary high-frequency apparatus, if they placed a metal conductor at the end of a solenoid they obtained a long spark indicating the highest potential; in the middle they found the least potential but the most current. In this case the coagulation occurred exactly at the node where the two phases crossed each other. In applying the thermic treatment to any desired part of the body, would it be possible to get the node, at

which there was a maximum amount of current, by passing the current from one electrode through a thickness of conducting material, such as pads wetted in salt and water? It would be very useful to be able exactly to insure the current at the point where it was most required. With regard to pneumonia, he imagined that any malady that was benefited by the hyperæmic treatment would be benefited also by diathermy. At one time he thought that the practice of holding the two electrodes, one in each hand, would mean that the place of maximum current would be at about the region of the heart, and that this might not be good for that organ. He was glad, however, to hear from Dr. Nagelschmidt that it had a beneficial effect. In ordinary high-frequency applications the heart was often by no means well affected, but that might be due to the discontinuous oscillations. He did not think that the heat alone was sufficient to cause the beneficial effects which had been indicated. Also, he had often thought it unwise to employ the term " selective action " (as was too frequently done), and to suggest that the X-rays or the Finsen light, or any other agent, had a selective action upon certain pathological cells. The effect was due, of course, to the low vitality of the cells, which were earliest affected by the attack of the therapeutic agent. It seemed to him that diathermy presented an ideal treatment for uterine fibroids. Apostoli, before he died, had for many years considerable success in the treatment of this condition by means of the continuous current, and with this new apparatus, together with the technique of Apostoli, a decided advance might be made. The cosmetic effects of diathermy were exceedingly good. He (Dr. Manders) had employed the method in experimentally producing a burn on his own hand. It occupied about five weeks in healing, but there was absolutely no trace of it now; the experiment was done in December, 1906. He was also very glad to meet Dr. Nagelschmidt personally, and hear what he had to say on the subject of fulguration. He had already read his trenchant criticism of de Keating-Hart's method. Indeed, fulguration was not originated by de Keating-Hart (who got it from Rivière), but was described by Oudin so long ago as the Moscow Congress of 1897. A feature of the diathermic method was the easy manner in which it was possible to insulate the instruments used: for the curette, the ordinary rubber that electricians used for making a joint answered perfectly. He hoped that this new high frequency would not get into the hands of outsiders, for this would mean that discredit would be thrown upon it, as accidents were bound to happen in unskilled hands. Von Zeynek, of Prague, writing in one journal, had shown that these currents passed directly from the nearest point in one electrode to the nearest point in another, and it was therefore possible to produce coagulation in layers in fluids such as urine, as well as the deposition of metals from solutions of salts.

Dr. REGINALD MORTON said there were several points that Dr. Nagelschmidt had mentioned which had aroused his interest. One of these was the production of keloid, which was so readily developed in the scar-tissue of burns. In the paper which he (Dr. Morton) read before the Section in November, 1909,[1] he had

[1] *Proceedings*, 1910, iii, p. 50.

said that the scar following the application of heat was rather prone to keloid changes. Dr. Nagelschmidt also, apparently, had found that trouble. This keloid change was very important when one came to attempt the use of the diathermic method for cosmetic surgery. In his (Dr. Morton's) paper, referring to carbon dioxide, he said that he had not seen any keloid changes as a result of the freezing process, which, of course, was exactly the opposite to the diathermic process, and he had not heard of any keloid following carbon-dioxide treatment. Some cases treated a year ago remained perfectly well and the scars left little room for complaint. Another point which he had noted had regard to Dr. Nagelschmidt's statement that, if the electrodes were held in the hands and sufficient current passed, the maximum heat would be felt at the wrist-joint. Early during the present year he was shown one of these instruments—not of the same manufacture as the one which had been demonstrated that evening, but of similar principle—and when about one ampere of current was passing it was at the thick part in the middle of the fore-arm that he felt the greatest degree of heat. He agreed with Dr. Manders that much importance was attached to selective action. It was the low vitality of a diseased cell which caused its comparatively easy destruction; its power of recovery as compared with the normal cell was greatly reduced. The same thing held true whatever the agent employed—X-rays, Finsen light, ionic medication, carbon dioxide, or this diathermy. The tissues of the diseased cell had diminished powers of recovery under the assault. The only essential, of course, was that the dose must not be so strong that the normal cells also perished.

Dr. FRANZ NAGELSCHMIDT said that with regard to cancer of the œsophagus, if the condition were clearly defined it might be treated, but, generally speaking, he would not advise the opening of the mediastinum. With regard to keloid, it was apt to occur after diathermic treatment if the wound were allowed to close too quickly. Diathermic wounds had a tendency to promote the rapid formation of epithelium, and as a consequence keloid was formed. This rapid epithelialization should be retarded by the application of pyrogallic or other ointment, and if the wounds were kept open for six, eight, or ten weeks the resulting scars were as soft as could be wished. In considering the reason why, after burning, a wound had a tendency to rapid epithelial development, one must remember that there was always a zone between the sound tissue and the burned tissue which had received this heat stimulation. In the case of ordinary burns this action was seen, but in diathermy it was much more pronounced, the tissue having a tendency to the enormous production of epithelial cells. In diathermic operations for cancer the use of the knife was contra-indicated, except in so far as the skin was concerned. After marking out the position of the electrode, the skin between those points should be divided with a knife; the skin having been opened, the electrode should be pressed down into the tissue. Afterwards, when a wall of coagulation had been formed around the whole operation field, so that there was no fear of causing dissemination, the curette could be used if desired. The danger of propagation after cancer operation was quite realized, and a generalization sometimes

occurred. It was very difficult to avoid dissemination in the peritoneum after an operation for cancer of the uterus. An attempt should be made to approximate the edges of the tissue, but it was seldom that this could be done, and in some cases it was quite impossible, the area of treatment being too large. Before the operation every nodule that could be felt was marked out, and afterwards touched with the electrode for one or two seconds. It was impossible, of course, to feel microscopical nodules, but experiment showed that the action went a little further than one thought. It was not necessary, therefore, to destroy every little nodule, but it was necessary at the commencement of the operation to bear in mind the possibility of infection. He had been asked where, in the treatment of the nasopharynx, the indifferent electrode was to be placed. For superficial action it might be placed on any part of the body—for example, on the breast—but if action in a certain direction were required the position of the indifferent electrode must be selected with that purpose in view. It was very important to know where the maximum action was required. In the centre, say, of a limb shown in section, there was a point at the intersection of the heat streams where the action of coagulation was, of course, very much stronger than it was anywhere else. There was a danger in making an application of too strong a current. Two and a half amperes were sufficient for medical and surgical purposes. The technique to be followed in the treatment of neuritis depended upon the particular case. One of his patients suffered from severe neuritis. The pains came on regularly every morning at 11 o'clock, lasted for two hours, and rendered him unable to work. This had been going on for months or years, but after a single diathermic séance of only two minutes' duration he never had another attack. Generally speaking, his method was to treat neuritis of a rebellious character for fourteen days, giving daily sittings of five, six, or seven minutes, and then suspend the treatment for an interval. The amperage required depended upon the localization of the nerve affected. With a superficial nerve two or three amperes might be employed with a small electrode for a short time. In deep-seated sciatica, the patient being very stout, he might give rather a strong stream for a longer time. The danger of coagulation in the case of patients who had anæsthesia and were insensible to heat must be taken into account. It was well to note that pain occurred immediately before thrombosis, and was in the nature of a warning. Artificial fever could be produced by diathermy, but in order to do this the heat must be conserved within the patient's body. With the patient well covered, and the employment of a current of $2\frac{1}{2}$ amperes, there would be a very clear artificial fever within two or three hours. The danger of making emboli would be considerable. As to the effect of heat upon the heart, when the electrodes were held in the hands the heat had the whole blood-stream for its path. In this way it not only influenced the heart but also raised the normal tone of the blood-vessels. The action which he had described as stimulating took place chiefly on the wall of the artery. With regard to technique, only slight insulation was required for the electrodes in diathermic applications, since the currents were not of very high voltage.

# Electro-Therapeutical Section.

October 21, 1910.

Dr. H. Lewis Jones, President of the Section, in the Chair.

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## The Röntgen-ray Examination of the Œsophagus.

By Alfred C. Jordan, M.D.

In common with the rest of the alimentary canal, the œsophagus has only been satisfactorily examined since we have become aware that we can safely give large doses of carbonate of bismuth. The œsophagus is placed in the posterior mediastinum, close against the spine, with the heart and aorta in front of it; we cannot get a good view of it, even when filled with bismuth, from the front or back; we are dependent on the oblique views; further, the patient must be examined in the vertical position to enable the prepared meal to descend. Hence a point of fundamental importance is to arrange matters so that the examination may be made in the most advantageous way. The patient is best placed on a revolving saddle, the seat of which can be raised or lowered to the height suitable to the length of the patient's legs. His body is supported by a canvas back, which revolves with the seat, and can be clamped in any position—front, back, or oblique. The most favourable oblique angle must be determined by fluorescent-screen observation in each case. The X-ray tube must be placed in a protective box or shield capable of being easily moved to any position in a vertical plane, and it is essential that the front of the box (or shield) be fitted with an adjustable rectangular diaphragm, for most of the observations of the œsophagus need to be made with the diaphragm reduced in size to a narrow vertical slit. The fluorescent screen is glazed with lead glass of tested opacity, and is supported by a pair of clamps on a lead-lined

screen with a sliding panel, so that the observer, who stands close to this screen, facing the patient, is thoroughly protected, no matter what the height at which the fluorescent screen may be placed. This apparatus was described by me in the *Archives of the Röntgen Ray* for August, 1909. It is obvious that careful examinations can only be made if the observer feels that he is working in safety. The double foot-switch (described in the same article) contributes very substantially to the security and comfort of the operator, for by merely raising the foot the current is broken in the primary circuit and the room is lighted. This eminently practical idea is due (in different form) to Mr. Shenton, and it is difficult to understand why it has not long since been adopted by everyone engaged in X-ray diagnosis.

## The Normal Œsophagus.

The healthy œsophagus, as a rule, throws no shadow, though occasionally, above the level of the top of the aortic arch, a linear vertical shadow may reveal its position. The chief forms of bismuth preparation used to show the condition of the œsophagus include gelatine capsules containing dry carbonate, emulsions, and bread-and-milk or similar meals. One is frequently asked which of these is the best. The answer is that all three forms need to be used, otherwise we shall occasionally be led astray. The best practice is to begin by using a fairly thick emulsion; this is placed in a glass or mug which the patient holds in the left hand; the observer darkens the room and simultaneously starts the current through the tube by means of the foot-switch, and directs the patient to drink. The rate at which it descends depends principally upon the thickness of the emulsion; it is shot rapidly, by the act of swallowing, through the pharynx, and then passes through the œsophagus by its own weight. I have seen very little evidence of genuine peristalsis in the œsophagus, the main propulsive force being gravity, both in health and disease. Of course peristalsis does occur. There is commonly some slight delay and deviation from a straight course at the level of the bifurcation of the trachea, and it is obvious that the narrowest point of the œsophagus is the cardiac orifice; almost invariably the emulsion tends to collect for a few seconds at the lower end before entering the stomach.

A very early œsophageal growth may cause most definite obstruction to the passage of the emulsion although a bougie may pass without difficulty. There are growths, however, particularly at the cardiac

orifice, which produce no material narrowing of the lumen, and those are occasionally missed when the emulsion is used. In such cases a gelatine capsule may lodge at the affected spot, and may give some indication of an obstruction even when the emulsion passes through in a normal manner. It is most important to realize, however, that the fact of a bismuth capsule being held up in any part of the œsophagus is no proof of an obstruction at this part; it frequently happens that a *capsule* is held up, more *particularly at the cardiac orifice*, for as long as *fifteen or twenty minutes* in a perfectly normal œsophagus, and the patient may drink large quantities of water without dislodging the capsule. A bread-and-milk meal may be similarly held up in a normal œsophagus if a fairly solid lump of bread happen to form a plug; in this case the obstruction does not often persist longer than ten minutes, the plug softening and yielding sooner than in the case of a gelatine capsule.

### Œsophageal Obstruction.

Œsophageal obstruction may be:—

(1) Spasmodic, due to (*a*) neurosis, (*b*) inflammation.

(2) Cicatricial, following burns by boiling fluids, strong acids, or alkalies swallowed by accident or in attempted suicide.

(3) Foreign bodies, plum-stones, &c. Children frequently swallow toys, coins, and other solid objects.

(4) Œsophageal piles.

(5) New growths in the wall of the œsophagus—(*a*) at the upper end (œsophageal pouches occur in this situation), (*b*) in the middle portion, (*c*) at the lower orifice.

(6) Tumours without the œsophagus, producing obstruction by pressure upon it—(*a*) masses of glands (tuberculous, cancerous, gummatous, lymphadenomatous, &c.), (*b*) primary growths in lungs or mediastinum.

(7) Aneurysm—(*a*) ascending arch, (*b*) transverse arch, (*c*) descending arch, (*d*) descending thoracic aorta, saccular aneurysm or general dilatation.

(1) and (2) Spasmodic obstruction to the flow of an emulsion through the œsophagus is usually momentary, and yields within a minute or two, though occasionally it is said to persist and lead to dilatation of the œsophagus. In the case of a capsule it may persist longer, the capsule being gripped. Acute inflammation, such as that set up by the

swallowing of a strong acid, is commonly associated with spasmodic contraction of the œsophageal muscle, so that considerable obstruction may be present. This form of spasmodic obstruction persists, to some extent, until cicatrization is complete. The administration of bismuth emulsion for the purpose of estimating the degree of obstruction may, by its sedative action, allay the inflammation and so relieve much of the spasm, and I have known apparently marvellous improvement produced in this way in a few days and attributed to the action of fibrolysin or other remedy that was being used.

(3) Foreign bodies that are swallowed, generally by children, are frequently metallic, and are seen at once on a fluorescent-screen examination. Plum- and date-stones are not easily seen, but a thin emulsion of bismuth may flow round them in such a way as to reveal their presence and show their shape quite definitely.

An interesting case may be mentioned at this point. A lady, aged 48, had been perfectly well until three months ago, when she began to vomit after food. The vomiting became more frequent and more copious, all her food being returned, and she began to lose weight seriously. She was diagnosed to have pyloric obstruction, almost certainly due to a carcinoma of the pylorus. I gave her a glass of bismuth emulsion to drink, and we were surprised to see that it began to collect at the bottom of the œsophagus and continued to mount higher and higher up the greatly dilated œsophagus, while only a very thin stream ran through the cardiac orifice and entered the stomach, which was normal. Most of the emulsion was vomited a few minutes later. A bougie was then passed, and was felt to meet an obstruction at the cardiac orifice. A little pressure was used, when suddenly the obstruction yielded and the bougie entered the stomach with ease. Thereupon the patient immediately made a complete recovery, a thickish emulsion passing through readily two days later, though there was still some indication of dilatation of the œsophagus for a day or two. What caused the obstruction in this case is still uncertain; the physician in charge of the case considers it to have been one of spasmodic constriction, relieved by the passage of a bougie. My own opinion was that some portion of food had become lodged at the cardiac orifice (a plum-stone, or more probably a tough piece of sinew) and that this was pushed through the orifice by the bougie. In support of my own explanation, I may say that the patient is a very sensible person—one who has never, before or since, shown the least neurotic tendency. She remains well, and has had no recurrence.

(4) Œsophageal piles form a good example of a form of obstruction at the lower end of the tube, where a bougie may pass through without giving the slightest indication of obstruction, while an emulsion, and still more a capsule or a solid meal, is held up, and only passes through at a slow rate and in a thin stream. Soft new growths, extending into the œsophagus from the cardiac end of the stomach, sometimes behave similarly, a bougie pushing them aside without resistance. In other cases, where there is extensive ulceration, the cardiac orifice may actually be wider than normal.

FIG. 1.

FIG. 2.

Fig. 1.—Right anterior oblique view. Œsophageal obstruction due to a malignant stricture at the cardiac orifice. The dilated œsophagus above the stricture is filled with bismuth emulsion which the patient has swallowed.

Fig. 2.—Right anterior oblique view. Carcinoma of the middle portion of the œsophagus. The bismuth emulsion swallowed by the patient shows the pouched upper end of the œsophagus, the irregularity of the affected portion, and a perforation into the posterior mediastinum. A thin stream of bismuth emulsion is seen running through the lower (uninvolved) half of the œsophagus.

(5) New growths at the lower end are usually carcinomatous extensions of growth originating in the stomach. Glandular enlargement may be seen in the upper part of the posterior mediastinum in such

cases more frequently by far than in the case of squamous cancers starting in the higher parts of the œsophagus. The entire œsophagus becomes dilated in these cases (fig. 1). The beats of the heart are often transmitted to it.

Cancers at the upper end of the œsophagus lead to the formation of a pouched upper end to the tube, while a thin stream of bismuth emulsion may be seen trickling through the stricture (fig. 3) and running down the entire length of the tube. The actual tumour is sometimes

FIG. 3.

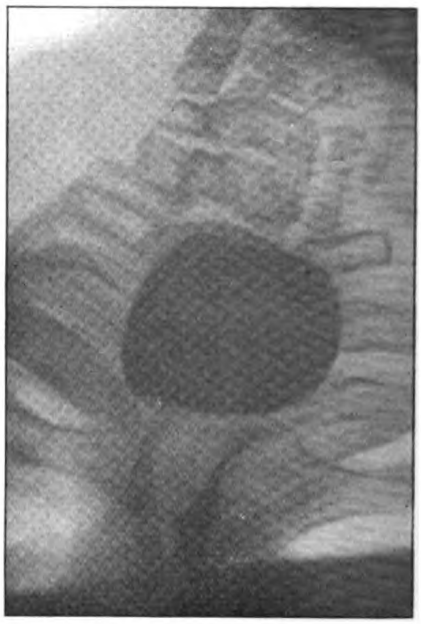

FIG. 4.

Fig. 3.—Left posterior oblique view, showing a malignant stricture near the upper end of the œsophagus, the pouched upper end being filled with bismuth emulsion, while a thin stream of emulsion runs through to the stomach. The actual carcinomatous growth is clearly shown immediately below the pouched upper portion.

Fig. 4.—Œsophageal pouch, showing how a part of the bismuth emulsion remained in the pouch at the upper end of the œsophagus, while the remainder passed through the œsophagus in a full stream. The pouch remains full for an indefinite time, and there is no thin stream trickling through a stricture, as in Fig. 3.

visible immediately below the pouched portion, as in fig. 3. Such cases need to be contrasted with genuine œsophageal pouches (fig. 4), for in the case of an œsophageal pouch the emulsion descends in a full stream

through the entire length of the œsophagus, but a little remains lodged in a pocket at its upper end. This bagful of emulsion remains indefinitely, unless the patient gets rid of it by coughing or retching, and while it remains not a trace descends; there is no thin stream trickling through a stricture. The difference is fundamental, and is only to be recognized with certainty by fluorescent-screen observation.

New growths in the middle portions of the œsophagus (fig. 2) are most commonly situated at the level of the bifurcation of the trachea

FIG. 5.

FIG. 6.

Fig. 5.—Right anterior oblique view, showing a carcinoma of the middle portion of the œsophagus which has perforated into the mediastinum. The perforation to the right (the observer's left) entered the hilus of the right lung, as shown in Fig. 6.

Fig. 6.—Anterior view. A cavity at the root has filled with bismuth emulsion swallowed by the patient. This cavity appeared as an abnormally clear region before the bismuth emulsion was taken. At the moment the emulsion was seen to enter this cavity the patient began to cough, and brought up phlegm containing bismuth.

—that is to say, just above the roots of the lungs. These are, in my experience, the most common œsophageal growths; they tend to grow along the tube, so that great irregularities of outline may occur

(figs. 2 and 5). They also tend to perforate, the bismuth emulsion entering the posterior mediastinum or one of the bronchi, the bronchus in this case being perforated secondarily from the posterior mediastinum (figs. 5, 6, 7, and 8). A very striking sequence of events is then seen on the screen when the patient drinks his emulsion. This passes down to the affected part; here a thin stream runs through the stricture; another stream, thin and irregular, runs nearly horizontally to the right or left; the dark stream then enters the root of the lung, where it either collects in a small pool (a pseudo-bronchiectatic cavity, which was seen as an abnormally clear area in one case before the

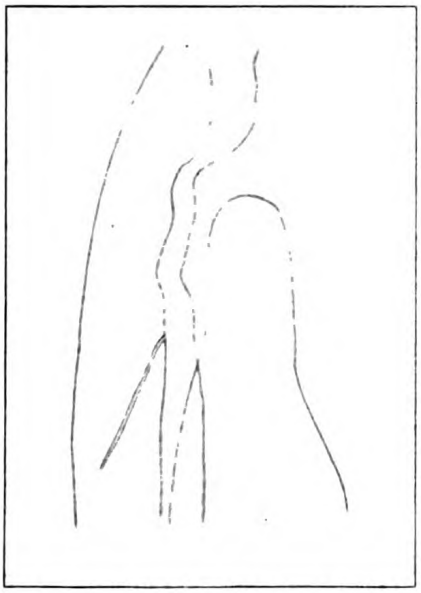

FIG. 7.

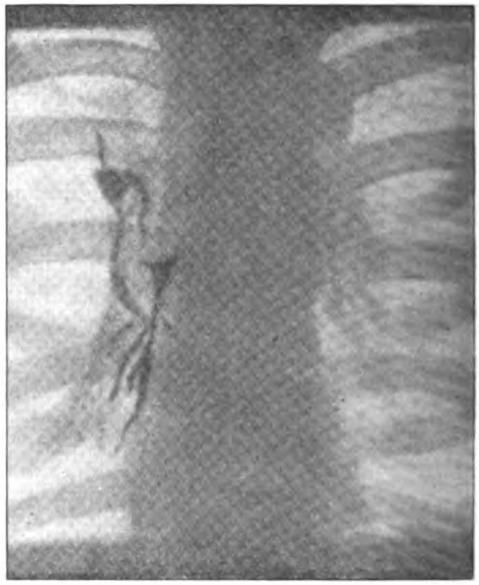

FIG. 8.

Fig. 7.—Diagram in the right anterior oblique view showing carcinoma of the œsophagus, with bismuth emulsion in the œsophagus. The middle portion of the œsophagus is irregular, and there is a perforation downwards and to the right from which the bismuth emulsion entered the right bronchus, as shown in Fig. 8.

Fig. 8.—Anterior view showing bismuth emulsion, swallowed by the patient, radiating through the main bronchial tubes on the right side. As the bismuth emulsion began to radiate along the bronchial tubes the patient began to cough, and brought up phlegm containing some of the bismuth.

bismuth emulsion was given), or begins to radiate along the main bronchioles. In either case the patient begins to cough at this stage, and brings up phlegm mixed with bismuth.

A case is now under observation (fig. 2) in which a definite small perforation into the mediastinum is shown by the X-ray examination, although there is nothing to make the patient or the physician aware of its presence.

(6) Tumours of the mediastinum, lungs, and pleura are very apt to cause obstruction to the œsophagus by pressing upon it, or by invading it from without. The appearances are so variable that there is nothing to gain by a detailed description of many cases of the kind. I have come across (*a*) cancerous (primary and secondary), (*b*) tuberculous, (*c*) gummatous (fig. 10), and (*d*) lymphadenomatous growths (fig. 12), giving rise to œsophageal obstruction.

FIG. 9.

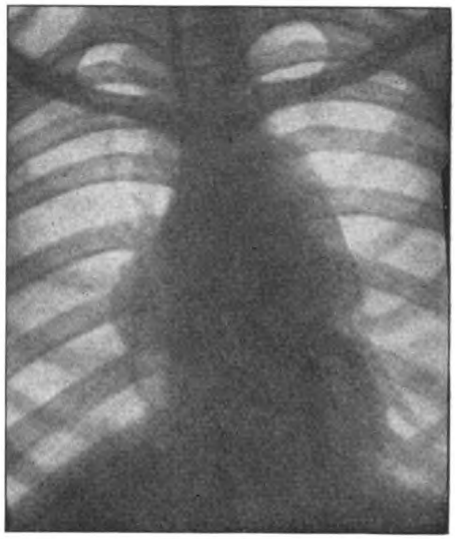

FIG. 10.

Fig. 9.—Left posterior oblique view, showing a malignant mass invading the middle and lower portions of the posterior mediastinum. The œsophagus was not obstructed, but was pushed forward by it. The post-mortem examination showed extensive malignant disease of the posterior mediastinum, with secondary growths widely scattered. The lower third of the œsophagus was ulcerated. This was apparently the primary growth.

Fig. 10.—Anterior view. Gummatous masses in the posterior mediastinum extending into the pulmonary area on both sides. The œsophagus was considerably displaced and obstructed by them.

In one case in Class A (fig. 9) a bismuth meal passed in a full stream, but was deflected at the level of the growth. A post-mortem examination showed extensive malignant disease of the posterior

mediastinum with secondary growths widely scattered. The lower third of the œsophagus was ulcerated. This was apparently the primary growth.

In another case (fig. 11) there was a fixed mass of glands at the base of the neck on the right side; these were seen to continue down behind the apex of the right lung. Below this was a rounded post-pharyngeal swelling, while an elongated oval shadow (no doubt due to enlarged glands) was seen in the lower half of the posterior mediastinum. The œsophagus was shown to be deviated at the upper swelling, and both deviated and obstructed at the lower.

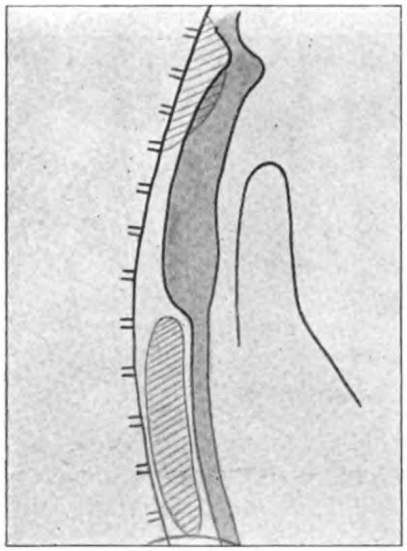

FIG. 11.

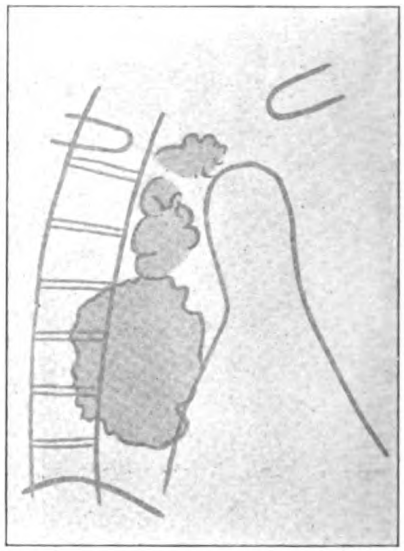

FIG. 12.

Fig. 11.—Diagram in the right anterior oblique view of the œsophagus containing bismuth emulsion, showing how the œsophagus is pushed forward above by a post-pharyngeal tumour, displaced and obstructed in its lower half by enlarged glands.

Fig. 12.—Diagram in the right anterior oblique view, showing lymphadenomatous glands in the posterior mediastinum displacing the base of the heart with the aortic arch forward.

(7) The case of thoracic aneurysm is of great interest and importance in connexion with the œsophagus. The physician or surgeon who suspects the presence of œsophageal obstruction must be assured that there is no aneurysm before he can use bougies or other œsophageal instruments with confidence, and aneurysms not uncommonly end by

opening into the œsophagus. He therefore avails himself of the penetrative powers of the Röntgen rays to settle this point, and the answer is perfectly definite in nearly every case.

Almost all aneurysms and dilated aortic arches give rise to some degree of delay in the passage of food through the œsophagus, and to some deviation of the œsophagus from its straight course. Relatively few aneurysms produce any really serious degree of obstruction. A very large saccular swelling of any part of the arch, or a large fusiform dilatation of the entire arch, may be present, and yet there may be practically no œsophageal obstruction, merely slight delay.

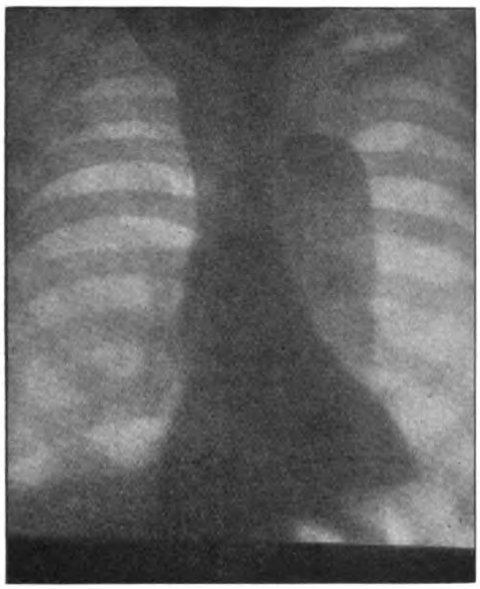

FIG. 13.

FIG. 14.

Fig. 13.—Aneurysmal dilatation of the descending thoracic aorta in its entire length.

Fig. 14.—Right anterior oblique view, showing fusiform dilatation of the aortic arch and an independent œsophageal stricture due to carcinoma, some bismuth emulsion having remained in the œsophagus above the stricture.

The case of the descending thoracic aorta is a specially interesting one. I am acquainted with two forms of aneurysmal disease of this portion of the aorta: (1) general atheromatous dilatation (fig. 13); in these cases a bismuth emulsion spreads itself out into a wide band of rivulets which descend in slow, tortuous courses between the dilated

aorta and the spine. The œsophagus is evidently flattened out between the two unyielding structures—the atheromatous, dilated aorta and the spine. An aorta of this kind, when removed after death and examined by the X-rays, shows numerous atheromatous patches. (2) The second form is that of a saccular aneurysm of the descending thoracic aorta. The saccule is seen, in the oblique view, as a rounded shadow in the posterior mediastinal clear space, displacing the heart forward, and the aortic arch with it. In one of the cases illustrated (fig. 15) it was thought to be an enlarged gland, but a post-mortem examination revealed the fact that it was a localized saccular aneurysm in the course of the descending thoracic aorta. Otherwise the aorta was normal. It

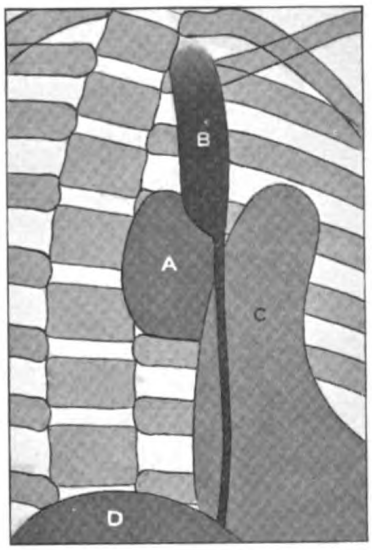


FIG. 15.

Right anterior oblique view. **A**, saccular aneurysm of the descending thoracic aorta. **B**, Bismuth emulsion in the œsophagus above the aneurysm; a thin stream of the emulsion is seen passing thence down to the diaphragm, whence it enters the stomach. **C**, Aortic arch, normal size, displaced forward by the pressure of the aneurysm. **D**, Diaphragm.

produced a tight obstruction and a sharp deviation in the passage of emulsion through the œsophagus. Of course a patient may have a new growth of the œsophagus giving rise to obstruction, and he may also have a dilated or aneurysmal aortic arch; both conditions occurring more frequently with advancing years (fig. 14).

In the earliest stages of aortic regurgitation (fig. 16) there is no œsophageal obstruction, though some difficulty in swallowing, of a reflex

nature, is apt to occur, and many mysterious symptoms referred to the stomach are undoubtedly due to commencing atheromatous dilatation of the aortic arch. Hence it becomes an important matter to recognize this condition in its early stages. The increased obliquity of the heart's long axis in aortic dilatation is well known; it is due to the fact that a dilated arch is also elongated; the descending portion of the arch is practically fixed in position against the spine; the commencement of the

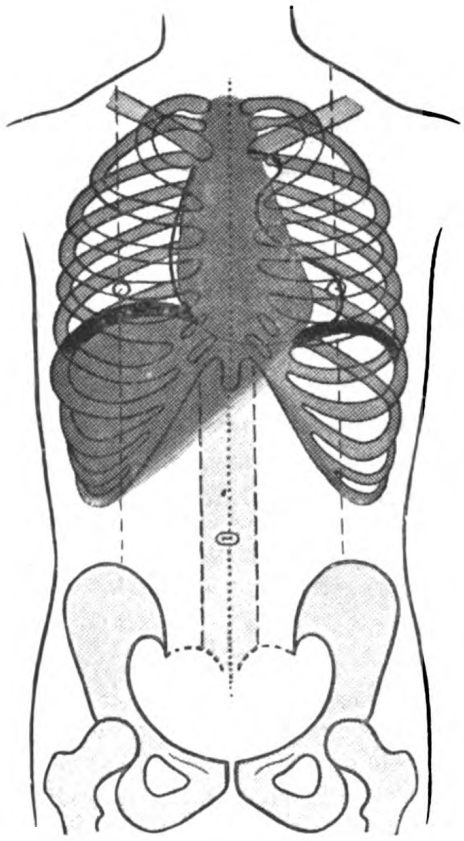

FIG. 16.

Author's diagram showing the normal cardiac area (shaded) and the form of cardiac and aortic shadow commonly associated with aortic regurgitation, due to atheroma of the aorta (curved black outline).

arch, however, is free in the chest; hence the result of elongation of the arch is to throw its first part, with the base of the heart, downward, and thus increase the obliquity of the long axis of the heart. This change begins very early, often long before there is any clinical evidence

of aortic disease, much less of dilatation, and I have on several occasions (*vide British Medical Journal*, November 19, 1910) drawn attention to the fact that atheroma may frequently be detected in an early stage by the characteristic form of cardio-aortic shadow depending upon slight elongation, often without appreciable dilatation, of the arch (*see* fig. 16).

All the examinations described to-night were of necessity carried out with the patient in a vertical position; in every case, therefore, the operator was facing the X-ray tube during the whole of the examination. Hence it is of the greatest importance for the observer to protect himself adequately by the interposition of leaden screens of sufficient thickness to prevent any appreciable amount of direct or secondary radiation reaching him. When working at the couch, where the bulk of the X-rays is directed upward, the observer is less exposed, provided the tube be enclosed in an efficient protective box. By working behind the lead-lined screen (as is my invariable practice) it is possible to avoid exposure of the body almost entirely. The question of adequate protection during the vertical examinations is of increasing importance, for these examinations are apt to be somewhat prolonged, and with the growing recognition of the importance of the work the number of such examinations is an ever-increasing one. I therefore feel that no apology is needed for bringing this matter forward once more.

[The author's revolving seat, lead-lined screen, and double foot-switch were exhibited.]

## DISCUSSION.

Dr. HARRISON ORTON referred to the filmy shadows associated with the œsophagus, which appeared anteriorly, and which he (Dr. Orton) regarded as possibly due to the suspensory ligament of the aorta. It seemed to start from the tip of the shadowed band. With regard to peristalsis in the œsophagus, frequently, if one gave a small cachet in a case of fairly tight stricture, he had known a very remarkable reversed peristalsis. The cachet was carried down rapidly to the seat of stricture, then rose in small jerks four or five inches, and then appeared to drop again on to the stricture, and again rose, but not quite so high. He had noticed that several times before it finally settled down on to the top of the stricture. He agreed that cachets, especially large ones, were frequently arrested for a considerable time, especially at about the level of the bifurcation of the trachea. Twenty minutes was a long time for one to be arrested. He regarded a narrowing of the shadow with bismuth as very important. If that thin stream followed after a normal shadow, it was very much against spasm, as a rule. And if it was due to spasm, by giving more bismuth the spasms would give way, and a meal would pass through. He did *not* agree that patients with œsophageal stricture were generally old. He had had many patients aged about 40; some were even younger. With regard to dilated aorta, he had never seen that alteration in the position of the heart, except where the aorta was very elongated, and then it cast a shadow on either side of the mediastinum. Before the oblique examination was adopted, such elongated aortas were mistaken frequently for aneurysm. But if such cases were rotated into the oblique position, the aorta shadow never had a dumb-bell shape; it almost always had parallel sides. The excellent series of skiagrams left little to be discussed.

Dr. IRONSIDE BRUCE said the only difficulty he had met with in œsophageal cases was to decide the difference between simple and malignant stricture. Since the obstruction was often behind the arch it was very difficult, because one often finds, in normal persons, some opacity of the posterior mediastinum at that level, not on account of a growth in the region of the œsophagus, but owing to the generally increased opacity of the roots of the lungs seen so commonly in later life. When bismuth food impacts at this level, despite the fact that the posterior mediastinum shows some increased opacity, he was of the opinion that obstruction might be due to a simple stricture and not a malignant one. He thought that X-ray examination alone should not in every case be relied on for a diagnosis of malignant stricture. He had several times observed what Dr. Orton had noticed, regarding the passage of a bismuth cachet through the œsophagus, and he had regarded the movements described as a reverse peristalsis, and an attempt on the part of the œsophagus to overcome an obstruction. In a case of undoubted obstruction of the lower edge of the œsophagus, he had seen the food which had accumu-

lated there retire a considerable distance upwards, to come down again at a very rapid rate, evidently nature's way of forcing the food through the stricture.

Dr. PIRIE was interested to hear that a normal œsophagus might retain a cachet for twenty minutes. One must allow for the various dilatations and alterations in size of the œsophagus. One person swallowed water slowly, while another could practically pour it down. That week he had seen two cases of children who had swallowed a farthing; both were about the same age. One of them kept it in his œsophagus four days, and the other passed it straight into his stomach, though in the first case there seemed to be no obstruction in the œsophagus. The only way to show that obstruction was due to malignant disease was to demonstrate the malignant disease also. The technique must be improved so as to show the disease underneath the obstructed bismuth.

Dr. G. B. BATTEN remarked that Dr. Jordan said, "When the heart seemed to be lying too flat, in the oblique position, it was always due to elongation of the aorta." Of this he himself had recently observed a case in a child who had an enlarged liver. The question was whether it was primary tuberculous liver or whether there was empyema or other lung trouble. There was no fluid in the pleural cavity, but a dark shadow was seen down the right side of the mediastinum, and he took that to represent the bronchial glands. The heart's obliquity was very marked, and he would like to know whether Dr. Jordan still thought that, in a child aged 8 years, it was likely to be due to the aorta.

Dr. HERTZ could not agree with Dr. Jordan's view that peristalsis did not occur in the œsophagus. About four years ago he had made X-ray observations on normal individuals, watching them swallow food containing bismuth while in the recumbent and in the inverted posture as well as when erect. While lying down the food moved as rapidly as when erect, and even when the individual was inverted it moved steadily upwards till it reached the cardia, though only at about one-third the rate it descended in the ordinary erect position.[1] As peristalsis must be the cause of the movement in the inverted position, he assumed it would also be the chief factor in the erect position. In one case he had seen a cachet stick in the œsophagus of a normal individual for fifteen minutes; he asked whether there was any means of recognizing the cases in which the cachet was arrested owing to organic obstruction, If not, he did not see what information could be gained from the examination with a cachet. He asked Dr. Jordan for more details as to the reasons for some of his diagnoses. In one case the physician diagnosed spasm in the lower end of the œsophagus, but Dr. Jordan thought a bolus of food had caused obstruction, because the patient was not neurotic. He (Dr. Hertz) thought spasm was much more probable: there were cases of spasm in patients who were not neurotic, including the severest forms, which led to enormous dilatation of the

[1] *Guy's Hosp. Rep.*, 1907, lxi, p. 389.

œsophagus and which were sometimes fatal. Some cases of spasm were cured by the passage of a bougie on a single occasion, as occurred in this case of Dr. Jordan's. Dr. Hertz found it difficult to agree with Dr. Jordan's diagnosis of gumma of the mediastinum ; that was a very rare condition, and no specimen of it occurred in the Guy's Museum. The rounded shadow seen in the skiagram seemed likely to be due to an aneurysm in an unusual position ; moreover, if it had been a gumma, one would have expected it to disappear with iodide of potassium and mercury. He did not think it would be possible for dilated œsophageal veins to cause obstruction in the manner suggested by Dr. Jordan, as the pressure exerted by a bolus of food would be sufficient to obliterate them. Could Dr. Jordan give details of any cases in which obstruction was due to that cause? With regard to the elongated aorta with the heart inclined to the horizontal, he understood Dr. Jordan to say that all those cases had aortic regurgitation. That would be highly improbable, because one frequently saw post-mortem an elongated aorta due to atheroma, in which there had been no sign during life and in which no evidence was found post-mortem of aortic regurgitation.

Dr. JORDAN, in reply, expressed his gratification at the discussion, from which he had learned much. He was much interested in Dr. Orton's explanation of the anterior of the two shadows, and would make a point of looking into that in future cases, to find out whether it were due to the suspensory ligament of the arch. He had often seen the up-and-down movement of the bismuth, but did not think it due to reverse peristalsis. It occurred in the upper part of the œsophagus, at or above the level of the aortic arch, and he believed it to be due to pharyngeal muscular contraction, which restricted the space so much that the capsule or emulsion was forced up. On watching the œsophageal pouch cases in the vertical position one saw the same movements, but he did not think they were due to reversed peristalsis. He said the elongated arch was caused by, or gave evidence of, atheroma, and that the change occurred long before there was clinical evidence of aortic regurgitation or other disease which was due to atheroma. But in marked cases of it there was usually aortic regurgitation clinically, and equally obviously post mortem. The opacity at the root was often due to fibrotic changes there, and in well-marked cases there might be some difficulty in observing the bismuth meal pass through it. The main point was that the diaphragm must be reduced to a narrow vertical slit, and in the examination of the œsophagus one must concentrate on the posterior mediastinum. With regard to the diagnosis between simple and malignant stricture, in several of the cases of which he had shown slides (figs. 3 and 9) the malignant tumour was visible immediately below the obstruction ; but in the majority it was not so. He did not deny the existence of œsophageal peristalsis ; in fact, he said that peristalsis did occur. He had drunk a glass of water while as near the inverted position as he could get, in order to convince himself that the fluid stayed in the stomach. His contention was that peristalsis played a very small part in the examination of the œsophagus. A thin

emulsion passed down quickly, a thick emulsion slowly. In the stomach, when there was pyloric obstruction, it was common to see very powerful peristaltic waves trying to overcome the obstruction. No analogous phenomenon was ever observed in case of obstruction at the lower end of the œsophagus. With regard to spasmodic stricture of the œsophagus, he understood an American surgeon had collected, and would shortly publish, no fewer than ninety cases of persistent spasmodic contraction with enormous dilatation of the œsophagus. With regard to the stoppage of a capsule at the lower end of the œsophagus, the point was that a soft growth or a bunch of congested veins at the lower end of the œsophagus might act as a soft plug upon which a capsule or a column of emulsion might rest, and so simulate real obstruction; but a bougie or œsophageal tube would push the soft mass aside without resistance and would enter the stomach with ease. The diagnosis of gumma was based upon a positive Wassermann reaction. Treatment with iodide of potassium and mercury had led to improvement, but only up to a certain point. It was in such cases that Ehrlich's new remedy had produced wonderful results. With regard to the case mentioned in the discussion of an oblique heart in a child, any abnormal pressure in the abdomen might push the heart out of place; but this was an entirely accidental condition, and had no reference to the diagnosis of atheroma. It was true that œsophageal obstruction from malignant disease frequently occurred at a relatively early age, though it was undoubtedly a disease of advancing years. Aneurysm usually occurred in old people, though atheroma might commence early, and in the cases in which the particular form of heart shown in fig. 16 as associated with atheroma was found at a particularly early age (30 to 35 years of age), he had always obtained a history of previous syphilis, a disease in which atheroma was well known to occur at an early age. In any case, the possibility should be borne in mind of the accidental concurrence of carcinoma of the œsophagus with aneurysm of the aorta.

## Demonstration of a New Tube-stand.

By STANLEY MELVILLE, M.D.

DR. STANLEY MELVILLE showed an X-ray tube-stand which has lately been constructed to his design, with the object of enabling radiograms to be taken from any position, either from above or below the couch, by means of a single piece of apparatus.

The stand consists of a 2-in. solid steel upright rod, bolted to a heavy casting, which is firmly fixed to the floor. The cross-bar, which has to carry the tube-box and counterweight, moves easily up and down the upright rod and can be clamped in position when required. All the movements of the tube-box are adjusted by a clamped sleeve.

The tube-stand is designed for radiography both from above and below the patient, for screen examinations with the patient lying on the couch or in the erect position, for radiography by compression with cylindrical compressor, either from above or below the couch, also for stereoscopic radiography. An accurate centering device is provided by means of a plumb line, for use when the tube-box is below the couch. For radiography from below the patient the plate is placed above that part of the body to be skiagraphed, the plumb line suspended from the top of the stand showing exactly the position of the target of the tube beneath, thus ensuring the use of the direct rays. When radiographing from above the patient the negative is placed in a vellum-covered plate-changing box, and the tube-box can quickly be brought into position above the patient.

A compression cylinder fits with a bayonet catch to the edge of the diaphragm of the tube-box, and is allowed to adapt itself in both a lengthwise and crosswise direction to the natural lines of the body. Stereoscopic radiography under compression is arranged for by shifting the tube above along a slide for the requisite distance.

### DISCUSSION.

Dr. IRONSIDE BRUCE congratulated Dr. Melville on his ingenious device. From his point of view, the tube-stand enabled one to carry out examinations in what he (the speaker) regarded as the correct way—namely, obtaining views in fixed positions—for thus one became accustomed to the views secured, and so diagnosis was greatly facilitated. Other features of the arrangement of the

tube and stand made it most useful, but no doubt in course of time other additions and improvements could be made. He would suggest in the meantime that it would be of advantage if the tube were held in a separate holder, detachable from the shield, for in this way one tube removed could quickly be replaced by another which had been previously centred.

Dr. ORTON asked whether any member had made experiments with the lead glass of which the shields were made. He found that they allowed a good deal of the ray to pass through. In one case he could see the bones of his hand through the glass shield and through the protective gloves when using a high tube. He had a $\frac{1}{2}$-in. glass substituted, and it still allowed more ray to pass through than did the rubber protective material. He had wondered whether those glass shields were safe to work with.

Mr. GILBERT SCOTT thought that it would be awkward to move the couch with a heavy patient on it if the ordinary wheel castors were used, and suggested large "domes of silence" to be fixed on the legs. This stand should not be criticized from one point of view, because it was *multum in parvo*. However, a compressor used in kidney work should have some arrangement by which it might give way to the respiratory movements; the patient would then let it sink in, and it should be clamped when "home" so that no movement whatever could take place. The stand shown was the most rigid of this type, although a mechanical mind might criticize the principle.

Mr. STANLEY MELVILLE, in reply, thanked the members for their friendly and useful criticisms. He wished to thank Mr. Read, of the Medical Supply Association, for the very skilful manner in which the latter had carried out his ideas. For therapeutic purposes a smaller tube-holder had been designed, with shields of various sizes. With reference to perfectly reasonable criticisms as to ability to obtain absolute compression with a single as compared with a double vertical compressor, this had at first seemed to present difficulty, but in practice he must say he had felt satisfied with his results. He allowed the compressor to accommodate itself to the contour of the region to be examined. This gave the patient confidence, and the compressor was only driven home and fixed at the last moment. The horizontal arm which carried the tube swung back when it was desired to work from above the couch, thus obviating the necessity for moving the couch.

# Electro-Therapeutical Section.

December 16, 1910.

Dr. H. LEWIS JONES, President of the Section, in the Chair.

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## The Value of Electricity in Treatment of some Abdominal Diseases.

By HORACE MANDERS, M.D.

I PROPOSE to present for your consideration to-night the great value which I have found in the electrical treatment of diseases of the abdomen, but, as this is too wide a subject to be dealt with in the time allotted to a single paper, I shall limit myself to certain diseases which affect the stomach, the duodenum, and the gall-bladder, regions in intimate relation with each other, and the diseases of which tend to dovetail one into the other. All these maladies are sufficiently common; most of them are accompanied by distressing symptoms of discomfort, and some are attended by terrible pain which may amount to actual agony.

The general shape of the stomach resembles that of a Dutchman's wooden shoe (especially that kind depicted in caricature), of which the tip would represent the pylorus, and a thin ankle inserted into the opening the œsophagus.

As regards the anatomy of the stomach as revealed by the X-rays after a bismuth meal, I may here remark that there is no danger, as has been suggested, from any secondary rays given off from the metal, because, in order to produce such rays from a metal of so high an atomic weight as that of bismuth, a tube would be required of such

excessive hardness that it would be quite useless for our usual purposes.

In my paper I shall only deal with those maladies which are amenable to treatment by electrical methods, either alone or in conjunction with other means, such as diet, lavage, and massage. There is an increasing tendency in the professional mind to regard most of these diseases as only to be dealt with by the surgeon, and no doubt in many cases this is the fact; though, on the other hand, I am perfectly convinced that a fair number of those which are now relegated to the operating theatre may be perfectly well relieved, and a cure effected by a treatment in which electricity is the chief agent employed. For our present purposes we may divide the disorders affecting the stomach into (1) functional, in which there is no appreciable alteration in structure, and (2) organic, in which the symptoms are accompanied by definite change in structure or shape, with or without actual displacement. Functional disorders have been divided by Robin into the hypersthenic, with exaggerated secretion; the hyposthenic, with diminished secretion; and those with perverted secretion, which we might well term heterosthenic. When not caused by nerve disorders or reflex irritation, these functional dyspepsias are but phases in the progress of the same malady, the gradual onset of motor insufficiency, due, as a general rule, to the pernicious habit of bolting food without proper mastication, and, to a far less degree, to the quantity and quality of the food. Bits of entrées and lumps of animal food swallowed whole with an insulating casing of fat or greasy sauce cannot be properly attacked by the hydrochloric acid of the stomach; hence more of it is secreted to reinforce the normal amount. This excess begets tension and spasm of the central and pyloric sphincters, causing gastralgia, heartburn, and other well-known symptoms. This is the first stage, that of hyperchlorhydria. Owing to this constant over-stimulus, the muscles become fatigued, lose the power of churning up the food, and make but feeble response to the stimulus of the hydrochloric acid, which still remains in excess. Peristalsis may be seen to occur, but it is not the steady, rhythmical action of healthy digestion, but a series of spasmodic, jerky efforts resembling the spurts made by a tired horse under the lash. This is the second stage, that of hyperchlorhydria with motor insufficiency. The muscular relaxation and commencing atrophy are most noticeable at the cardiac end of the stomach. After a time the secreting cells become exhausted, when we have the third stage, that of motor insufficiency with hypochlorhydria. The general tone of the stomach

sinks lower and lower, and as the food is but feebly passed on it is not long before it begins to stagnate and lodge in the greater curvature. Being deprived of its natural germicidal protector, HCl, it falls an easy prey to the attack of saprophytic bacteria, with its attendant train of symptoms. This condition soon passes into that of atonic dilatation.

The first stage of dyspepsia of which I have spoken seldom calls for other than medicinal and preventive treatment, but in the second stage, that of hyperchlorhydria with motor insufficiency, electricity is the one remedy to be used, for by it we can check the excessive secretion and restore the lost tone to the muscles. I do not think that it is advisable at first to administer a fillip to the muscles. They are tired and done up, so their first requirement is rest and nourishment by means of a fresh flux of nerve energy. This is best effected by the plan devised by Dr. George Herschell. He places a large moist pad over the epigastrium to form the anode, and a similar pad at the nape of the neck as the kathode. A continuous current of 3 ma. to 15 ma. is passed for from five to ten minutes. By this upward current the afferent nerves are soothed, and pain is alleviated. The upper electrode is now changed to a much smaller one, which is applied with a reverse current of only 1 ma. or 2 ma., for one or two minutes in succession, to each of the ganglia of the sympathetic in the neck. The method I adopt differs a little from that of Dr. Herschell, for I avoid placing an electrode on the nape of the neck or anywhere near the spine higher than the level of the eighth dorsal vertebra. The reason is that from the anterior roots of the fifth to the eighth dorsal spinal nerves there proceeds a branch which goes to the stomach supply, and there exercises an inhibitory action over peristalsis. I place my negative electrode on the back below the eighth dorsal, and trust to the soothing effects of anodal electrotonus upon the solar plexus.

I can well believe that an undulatory current with a gradual rise and fall of quantity, as produced by the ingenious apparatus introduced to us by Dr. Hampson a few months ago, would be a decided improvement upon a steady and uniform flow of current. The excess of secretion having been reduced to the normal and the muscles refreshed, we expect the latter to resume their normal work, but they might require a little stimulus to start them ; this is supplied by the alternating or the induced current. Very little is usually required, and is given just as we might add a handful of beans to a horse's fodder after a hard day in the field.

In the third stage matters are more serious, for, in addition to the motor insufficiency, we have to face the cessation of secretion, showing an atonic condition of both muscles and nerves. The cure will necessarily be longer, but must also be begun by the galvanic current, as just described, and continued by applications of the induced current in the manner and technique described to this Section by Dr. Samuel Sloan,[1] but if possible with a tidal rise and fall of current as produced by the apparatus designed for the purpose by Dr. Lewis Jones. The truly alternating or sinusoidal current may be used with advantage to increase secretion and restore tone. The method was described by Dr. Reginald Morton at the Exeter Meeting of the British Medical Association.[2] I thought the tone of his paper rather too lugubrious, but we must not despair in these cases, they often will not yield to one form of treatment alone, nor to one technique. These obstinate cases may require intragastric electric treatment, and the addition of massage or farado-massage.

Cases which have deteriorated so much that dilatation has ensued with fermentation require lavage of the stomach and intragastric electrical treatment. The first method of effecting the latter was to pass a conducting wire down the stomach-tube—not an easy matter if the wire is thin, and not free from danger if the wire is thick. In any case, the wire was liable to be caught by any solid or semi-solid contents of the stomach. Einhorn constructed an intragastric electrode consisting of a bulb of hard rubber, perforated with holes which gave electrical connexion by the fluids within the stomach to a very fine wire enclosed in a thin india-rubber tube for insulation. The mode of introduction of the bulb into the stomach is by deglutition, depending for complete success entirely upon the patient's prowess in swallowing, and often causing so much distress and revulsion that any good effect produced by the after electrical treatment was very seriously discounted. The shape of the bulb has been improved and the covering of the rheophore strengthened and made much thicker by Ewald, Marshall, Ferrannini, Boardman-Reed and others, so that the operator is able to render material assistance to the patient in swallowing the electrode. All these electrodes depend for success on the fluids already in the stomach and the water taken to aid the swallowing. I think that this method has some radical defects; one of which is that unless the

[1] *Proceedings*, 1910, iii, p. 33.

[2] *Brit. Med. Journ.*, 1907, ii, p. 645.

stomach is previously lavaged, a current possessing electrolytic powers is let loose amidst a magma of horrible composition. What the electro-chemical effect may be I do not know. I think that even if the stomach has been previously washed out, it is a strain on the patient's fortitude to have again to submit to the introduction of another instrument. I venture to think that the method I have now practised for a good many years possesses all the advantages and none of the disadvantages of other modes. I will explain it to you, and you shall judge.

Early in the 'nineties I got Messrs. Maw, Son and Thompson to construct me a lavage tube, into the silk core of which was woven a silk-covered wire of about 7 mils. to 10 mils. thickness of copper, one end of which issued near the mouth of the tube, and the other terminated in a thin bit of copper which formed part of the lumen of the tube near one of the fenestra at the closed end, so that no obstruction could be offered to the passage of flocculi or small masses from the stomach. For the actual preliminary washing out of the stomach I use the simplest apparatus. Nothing more is required than the lavage tube, a large glass funnel, and an india-rubber tube of large calibre connecting the two. I have never found any real difficulty in passing the lavage tube, which I first prepare by dipping the stomach end for a little while into warm milk. This, being a natural bland food, seems to placate the pharynx and cheat it of its susceptibility to set itself against the passage of a strange body. When the tube is in the stomach the funnel is filled with warm water (100° F.), tinted to a deep pink by permanganate of potash. More of the same fluid is ready in a jug to add to that in the funnel before it has quite run down, so as to prevent any air from being carried into the stomach. When the stomach is full, I take notice of the quantity of fluid which I have used, as this gives me an idea as to the amount of the dilatation. The funnel is alternately lowered and raised until the contents of the stomach begin to appear. The funnel is now emptied and re-filled with the pink solution. This manœuvre is repeated until the stomach becomes quite clean, as evidenced by the colour and clearness of the fluid in the funnel. The latter is emptied and, with its tube, disconnected from the lavage tube, the conducting wire of which is now connected up to the battery or coil, as the case may be. I think it is always best to commence treatment with the galvanic current, the poles being arranged according to the symptoms to be alleviated. Afterwards, the induced tidal or the sinusoidal current should be used intragastrically. The technique is the same whichever current is used: the electrode of one pole is in place within the stomach

immersed in a fluid conductor; the rheophore of the other pole is divided into a Y shape, one limb of which is attached to a wet clay or swab electrode placed upon the epigastrium, and the other to a similar electrode on the back below the ninth dorsal vertebra. Thus the cardiac and posterior portions of the organ, which, as I have mentioned, lie deeply to the back, get their fair and direct share of the current. In galvanism the current should be from 20 ma. to 30 ma., maintained for about ten minutes. In faradism the duration is the same, but in quality it has been found that in cases in which there is but little secretion a low-tension current from a coarse and not over-long secondary winding answers better than a high tension, which tends to diminish secretion.

The one remedy which is of the most value in restoring secretion, in improving the blood supply, in promoting absorption of redundant tissue, and in favouring the resolution of adhesions, is undoubtedly massage in conjunction with faradism. I do not mean the alternate or successive use of the two, as text-books seem to imply when the two are mentioned together, and I must say that whenever electricity is mentioned as a remedy, there is seldom or never a word about either the particular current to be used or the best mode of application. I mean here the simultaneous use of the two remedies. I have been employing farado-massage now for a great many years, and for a long time was under the impression that the method was peculiar to myself until (in 1889) I read in the excellent work by Stretch Dowse that he also was in the habit of using the same method of treatment. It may be perfectly familiar to you of this Section, but I can find no mention of it by either Symons, Eccles or Mitchell, nor in a standard French work on massage which I consulted; works on medical electricity are equally silent.

The method which I pursue in gastric cases is as follows: One rheophore from the coil of induced current is connected to a swab electrode on the back of the patient in the situation already pointed out. The other terminal of the coil is connected by a long, flexible rheophore to the person of the operator, either attached to one arm or to one ankle, of course on the bare skin. I usually have a brassard (which serves also as an anklet) made from that ornamental, flexible, metallic ribbon that ladies wear round their waists, which is fastened by a buckle; it conforms well to the contours of the limb and gives good contact. The patient is placed on his back with the knees slightly drawn up and the mouth open. The operator stands at the right hand of the patient and places his right hand upon the epigastrium with the butt resting over

the triangular space where the stomach comes to the front, and the fingers spread out over Traube's space. The right amount of current is adjusted and pressure is made with the fingers, the hand being slowly drawn across to the right until the fingers clear the left costal cartilages; the pressure is now taken up by both palm and fingers, and, as the course of the movement of the hand gradually changes to an upward direction towards the pylorus, the greater curvature comes under the influence of the inner border of the palm and the little finger. By deep pressure these get well under the stomach and sweep slowly onwards, upwards, and to the right, until the region of the pylorus is reached. Whilst the right hand is going through this set of manœuvres, the left hand is made to glide along the line of the lesser curvature from right to left, and with a much more gentle pressure. In reference to that very valuable communication made by Dr. Reginald Morton as to the periodic time of muscular contraction, I should deem a setting of either Hampson's or Lewis Jones's tidal apparatus (if they will allow me to call it so), with tides or cycles attuned to the period of peristaltic action, to be the ideal adjunct to produce an optimum effect. The duration of a sitting should be of the order of ten minutes, and the strength of the current may be just so as not to give an uncomfortable feeling, yet sufficient to yield a good musical note as the hand passes over the skin of the patient. This note, or hum, is produced by the successive contractions of all the tiny little erectile muscles attached to the hairs of the skin.

Farado-massage sometimes restores secretion very promptly, so that it is as well to keep an eye upon the acidity by attention to the symptoms or by testing the contents of the stomach from time to time with a piece of Congo-red paper. In chronic dilatation we shall do much good by lavage, intragastric electricity, and farado-massage. It will be found that adhesions and inflammatory thickenings at and about the pylorus, the result of cholecystitis, as well as contractions from ulceration, often yield to these remedies in quite a surprising way. Before commencing treatment it is as well to map out the actual position of the stomach. I remember, a good many years ago, being not a little disappointed at a patient vomiting a further supply of the horrible magma on his way home from a lavage. A dose of bicarbonate of soda, followed by one of tartaric acid, soon disclosed the presence of a pocket down in the left iliac fossa, due to a partial hour-glass contraction which probably was caused by the contraction of a cicatrix after ulceration. Into this pocket the lavage tube had failed to penetrate.

This portion was treated by farado-massage and the viscera supported. The patient eventually recovered. The best time for administering farado-massage is about two or three hours after a meal, when the chyme is ready to be passed through the pyloric orifice. There are certain contra-indications to either simple massage or farado-massage. They are :—

(1) Ulcer, or any acute condition.

(2) Cancer ; fatty degeneration of the heart ; dilatation of the heart ; advanced phthisis; aneurysm of abdomen or of thorax.

(3) During the menstrual period.

(4) Hyperchlorhydria.

Dilatation of the stomach may arise from dilatation of the duodenum without stenosis of the pylorus. This is often caused by cholecystitis, and it frequently happens in relaxed conditions of the abdominal walls that there ensues a ptosis of the intestines which causes a drag on the superior mesenteric vessels. You will remember how these vessels cross the third part of the duodenum, and you can see how any drag on them must result in a pinching of the gut between them and the structures in the rear. Farado-massage is most useful in these cases, but the intestines must be supported in order to take off the strain. There is no better means of effecting this than by the special abdominal belt designed by Bradburne, and described by him in the *Lancet*.[1]

There is one form of atonic dyspepsia with dilatation of the stomach which appears to be the consequence of disturbances of the nervous system, especially those due to toxæmia. The secretions are either normal or slightly under normal, but the motor insufficiency is wofully pronounced. There is no obstruction at the pylorus, yet the stomach is seemingly in a hopelessly depressed and inert condition ; but it is by no means hopeless, for the symptoms yield fairly readily to treatment by the high-frequency effluve. Personally, I have met with great success by this method. I call to mind one case, that of a lady who had come over from Jamaica to try and get rid of her trouble, but did not improve under other remedies. She was then sent to me to see what electricity could do. The effluve caused the stomach to stand up at once in the abdomen so that the whole dilated area was plainly seen. At each séance the organ could be watched gradually resuming its normal shape, until all symptoms had disappeared and the patient was well. Some six months afterwards (February, 1903) I received a letter from her saying

[1] *Lancet*, 1905, ii, p. 606.

that she was enjoying better health than she had done for years, and was able to walk and ride long distances without fatigue. This is the more satisfactory as she had a terribly rough voyage back, being confined to her cabin for three days. It is because of this fact that I quote this case. About the same time Mr. Bokenham was using the same means, also with great success, as stated in the *Lancet*,[1] fifteen out of seventeen cases having been completely cured; but I cannot find any other literature upon the subject.

Another form of dyspepsia is caused by the toxæmia of gout. Gouty dyspepsia is not easy to treat effectually by medicinal means. It has been said that remedies which lessen the gout add to the dyspepsia, and those which relieve the dyspepsia tend to aggravate the gout. The remedy of choice in these cases is the high-frequency current administered by auto-condensation.

Most of the symptoms of sub-acute and chronic gastritis may be effectually treated by electricity. Pain and spasm call for galvanism either externally or intragastrically; stubborn vomiting may best be treated either by Ferrannini's plan of using the positive galvanic pole in the stomach immersed in a very dilute solution of strychnine, or (which, I think, is much safer) by intragastric faradism with as strong a current as can be borne (Borri's treatment). Gastro-succorrhœa is most easily controlled by induced currents of high tension, especially intragastrically.

Amongst other currents of value in the treatment of gastric disorders the current of de Watteville must not be overlooked. In some muscular conditions it is the most potent remedy of all in restoring both tone to them and to their nerve supply.

Acute dilatation of the stomach is not infrequently seen after operations and following shock; indeed, in the latter it may be regarded as never being wholly absent, and I am sure that many less acute forms are due to mental shock, worry, and anxiety. Acute dilatation is evidenced by vomiting, which is very persistent, but has nothing to do with any anæsthetic which may have been administered. As to treatment, lavage is essential, but I should advise the static charge also, if possible, as this is the only form of electricity which can be relied upon to raise the blood-pressure.

In ulcer of the stomach we can do much good work with electricity. An ulcer may occur at any part of the stomach, but, according to Brinton, those on the greater curvature only amount to 2 per cent., and the same

[1] *Lancet*, 1902, ii, p. 1013.

holds good as regards the fundus where they are situated in the upper part. Hence it is quite safe to pass a lavage-tube into the stomach of a patient suffering from the three cardinal symptoms of pain, vomiting, and hæmatemesis. Yes, even the latter; for the sooner we cure the ulcer, the sooner the danger will cease. You will remember that in cases of dilatation I said I was in the habit of using a weak solution of permanganate of potash within the stomach. This has not only the effect of first disinfecting the contents of the viscus and then showing me when it is clean, but by the after-effect of the electrolytic galvanic current ions of manganic acid are conveyed to the walls. When absorbed this gives tone and quality to the blood. As ulcer is so common in the anæmic and chlorotic, this addition to one of the most important constituents of the blood is of great moment. The manganic acid and the oxygen set free have also a direct healing action upon an ulcer. A solution of alum (with a tiny addition of sodium hydrate to take up the sulphuric acid set free) may also be used; zinc sulphate, too, is valuable, both for its well-known local action and for its properties as a nervine tonic. But the finest remedy we possess, to be used in this way, is the bichromate of potash. Of course, the current will have to be run in accordance with whichever (metal or acid) we wish deposited or conveyed to the walls of the stomach. The length of time depends upon the strength of current and the amount to be deposited, according to the laws of electro-deposition.

Boardman-Reed mentions "a group of symptoms which comprise especially tenderness over a region 3 in. or 4 in. in diameter, including the umbilicus as its centre, and a marked pulsation of the abdominal aorta in the entire epigastric region." "It may be the result of auto-infection from the gastro-intestinal tract." Also, "it is benefited by kneading." I have no hesitation in saying that this condition is due to bacterial infection of the common bile-duct, causing cholecystitis and sympathetic irritation in the duodenum—a condition which in many cases leads on to the formation of gall-stones and cholangitis. Relief is undoubtedly afforded by kneading, but, to get the full value, the kneading, or pétrissage, must be done in a particular way, which is equally valuable in the treatment of gall-stones by actual extrusion. I cannot here enter into either the ætiology or the symptoms of gall-stones, but must limit myself to the description of a means of getting rid of them without surgical operation. Massage alone is useful, but cannot compare for a moment with farado-massage as regards effectivity. The technique is as follows: As only one hand is used, one of the electrodes, if desired,

may be held in the left hand, the other is attached to a swab in the usual place on the patient's back. The patient lies in the position as for gastric massage already described. In the case of ladies of thin habit and of short stature, the shirt-cuff of the operator must be well drawn up or folded back; otherwise it is apt to catch the anterior superior spine of the ilium, and so cause keen discomfort to the patient. Our object is to squeeze the gall-stones out of their resting-place through the cystic and common ducts into the duodenum. Remember, therefore, the position of the gall-bladder and the direction in which we shall have to work. Notice, also, that when distended the gall-bladder comes somewhat downwards and forwards. It may often be felt like a billiard-ball, and I have known it as large as a good-sized pear. Lay the right hand with its palm to the surface of the abdomen and the butt below and to the right of the tenth rib, the fingers in a direction upwards and to the left. Turn on the desired strength of current, and then make firm, steady pressure with the butt of your hand deeply to the right of the gall-bladder, gradually pressing over it to the middle line, relaxing pressure as you clear the viscus. Let the fingers be well spread out over the left lower ribs and below them, transferring the bulk of the pressure to them, especially the ring and little fingers, as the hand moves back again from left to right. The object of this is to produce contraction from the fundus towards the pylorus, for there is almost always a certain amount of dilatation of the stomach in cases of cholecystitis and its allied disorders. Also, the passage of matter through the duodenum helps to encourage the exudation of the gall-stones through the opening into it. In this movement almost all the pressure is in the fingers, less in the palm, and little or none in the butt. As the palm returns over the gall-bladder, turn up the inner border of the palm, and with good deep pressure squeeze the gall-bladder well up under the liver in the direction in which the viscus normally lies. By this means the fluid in the gall-bladder is made to push in front of it any inspissated bile, concretions, or stones which may be there. These massage movements are steadily repeated, gently at first, and then with increased pressure.

You might think that such a proceeding would cause excruciating pain, but this is far from being the case, and it is not long before an immense relief is experienced. The reason is that the muscular fibres of the bladder have become worn out and can only act in spasmodic jerks and twitches, whilst the cystic walls are closed around the solid matter which stretches them. This, then, is the cause of the severe agony. In my method, a powerful, regular *vis-a-tergo* is applied with

a general electrical stimulation to all the fibres. The muscular coat is glad of this reinforcement, and responds to it harmoniously and not in painful jerks. By the steady pressure the fluid in the fundus distends the ducts evenly, in a manner somewhat similar to that of the liquor amnii. This obviates the painful spasmodic contractions and allows of the transmigration of the solid particles. Furthermore, the stones, being usually soft and easily moulded, conform by pressure to the lumen of the tube and so get pushed through. Towards the end of the sitting, and as the swelling of the gall-bladder subsides, the tips of the fingers may be used to follow up and push in the fundus of the organ. I give from thirty to fifty cycles of massage movements.

Although a single sitting will not cure, it will give untold relief very frequently, and the patient will probably sleep comfortably afterwards. A daily or even bi-diurnal sitting for a week will effect wonders, except in those cases in which the stone is of a harder nature than usual, and is firmly impacted so that only a surgical operation can save life. The internal administration of oleate of soda, especially that preparation of it called cholelysin, during the period of massage treatment, is a great help in softening the stones and so aiding their extrusion. I do not think that any case, except of extreme emergency, should be submitted to operation without a trial of this method of farado-massage with cholelysin. A little more than a year ago a lady came up from the country with only the prospect of an operation before her. She had suffered agonies of pain and the gall-bladder was much distended. It was a bad case, but it yielded to this method, and the patient has been perfectly well ever since.

## DISCUSSION.

Dr. HUMPHRIS said he understood Dr. Manders to say that hyperchlorhydria was a contra-indication for farado-massage. He (Dr. Humphris) took it that farado-massage was not very different from the sinusoidal current, as far as it affected the question under discussion. He had had a good deal of success in dealing with hyperchlorhydria by applying the sinusoidal current by the method of Abrams—namely, both electrodes over the stomach, and giving no other treatment at all. Dr. Manders mentioned the intragastric method of dealing with affections of the stomach. Since he (Dr. Humphris) had used a static machine he had entirely given up intragastric treatment, and he found that with the wave current he could get all the effects he had hitherto been able to obtain with intragastric treatment, and without any of the discomforts of that treatment.

Dr. BAYNES said he understood Dr. Manders to say that the action of medicines was chiefly general, and that one could not say that a particular medicine had a special action on a particular part. He did not agree with that remark. It would be agreed that there was a local action from sandalwood oil, and there were many medicines which had a selective action on the uterus, liver, heart, and other organs.

Dr. HORACE MANDERS, in reply, said he was glad to hear Dr. Humphris's remark about static electricity, as he did not himself know as much about it as he would like to, whereas Dr. Humphris had used it in a country which was much more favoured by a dry atmosphere than were these islands. He was glad to hear that static electricity had done so much good, because if a patient could be spared the horror of having a tube introduced *via* his throat it would be an enormous gain. But where there were dilatation and fermentation, and the consequent unpleasantness, the contents must be got out of the stomach; therefore one might as well follow with the electricity. Whether static electricity would be as good as or better than the galvanic or the induced current, he could not say. He hoped that some day Dr. Humphris would give a paper upon the use of the static current in gastric disorder. The sinusoidal current had a very fine effect, and he did not know that Dr. Humphris's treatment differed from that mentioned in the paper. In reply to Dr. Donald Baynes, he said that he did not deny the local action of medicines. Such a medicine as colchicum had a selective action on a gouty foot and on the liver, and iodide of potassium promoted the absorption of nodes locally; but it was not known

how these medicines, taken generally, would act or did act locally. No doubt gall-stones could be found in the stools, but to search for them was unpleasant, and nurses seldom cared to carry out the investigation. Frequently after death one saw small masses in the duct and in the gall-bladder; also the upper part of the duodenum was often stained with bile, showing that cholecystitis and small gall-stones were very common conditions.

# Electro-Therapeutical Section.

January 20, 1911.

Dr. H. LEWIS JONES, President of the Section, in the Chair.

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## Notes on the Treatment of Cancer by means of the X-rays and Radium.

By J. HALL-EDWARDS.

THE subject-matter of my paper this evening is not new; at the same time, no apology is necessary for again introducing it, owing to the extreme gravity and urgency of the case. Notwithstanding the numerous and never-tiring efforts which have been made to grapple with the terrible scourge cancer, statistics recently published go to prove that the mortality is increasing, and that so far science has ignominiously failed to stay its progress. Although our knowledge of this disease has greatly increased, and our methods of treatment have become more numerous, and perhaps more scientific, the fact still remains that early and complete excision gives the best chance to the patient, and yields on the whole the most satisfactory results. There can be no doubt that excision as practised to-day is more satisfactory than excision as practised fifty years ago. This is due entirely to improvements brought about in surgical methods. The improved results secured by primary operation are due, not to our increased knowledge of the disease itself, but to a better understanding of the principles involved in scientific surgery. Under modern conditions, fewer patients die as the direct result of primary operation, and inasmuch as under the conditions of modern surgery a far more sweeping operation can be performed with a minimum of risk, secondary infection follows less rapidly, and a lengthened period of immunity is secured.

Excision, to be successful, must be performed early, and must be complete. The small amount of success recently secured is due in no small degree to the action of the patients themselves, who, owing to the general spread of medical knowledge, seek advice far more early than was previously the case. In dealing with malignant growths in the breast, it is now generally held that every tumour in which malignancy is suspected should be immediately and completely removed, together with all the glands in the immediate neighbourhood. The statistics secured by this method of procedure are of little value, and are occasionally very misleading, inasmuch as in a large majority of cases it is impossible for a complete and scientific diagnosis to be made, and it must happen that occasionally benign tumours are removed, and cures claimed when none exist. Increased knowledge on the part of the public would undoubtedly yield still better results. A large percentage of patients still neglect to seek surgical aid until the disease is so far advanced that successful operative procedure is rendered impossible. To many persons the idea of an operation is so abhorrent that they neglect seeking advice until it is too late, and frequently even after the gravity of their case has been made fully known to them, they refuse operation in defiance of the wishes of their friends and relations.

If we accept the theory that cancer in the first instance invades the body from without, and is primarily a local disease, it should follow that with early excision undertaken before any constitutional symptoms are manifest, a "cure" may be secured, and should no return of the disease occur within a period of from three to five years, the result may be considered entirely satisfactory. So-called cures secured by following this method are common, and are generally accepted as direct evidence of the value of operative methods. Scientifically, I doubt whether these cases should be classed as "cures" at all. The disease has certainly been got rid of, and possibly may not return, but a "cure" can no more be claimed than in the case of a painful corn which is cured by amputation of the foot.

We have at hand ample evidence that many cases of malignant disease have been cured, and in some instances after such cases have been pronounced incurable. In dealing with cases by other than operative methods, it not infrequently happens that if a "cure" be secured, we are told that it has come about spontaneously, and that the same end would have been secured had no method of treatment been adopted. In a leading article in the *British Medical Journal* of February 6, 1909, dealing with the therapeutic effects of radium, the writer says: "It is

now well known that in some cases a process occurs in epithelioma which leads to spontaneous cure, this fact must never be lost sight of in estimating the results of the treatment of cancer." I fail to see how the word " spontaneous " can be properly applied under these conditions, inasmuch as the writer here admits that this " process " only occurs in cases under treatment. So far I have failed to find the history of a single well-authenticated case in which spontaneous cure has occurred apart from some method of treatment. To what, may I ask, can this " process " be ascribed, if not the result of the special treatment adopted? The theory of spontaneous cure is, as a rule, only brought forward when there exists a wish on the part of the sceptic to discountenance a fact which is opposed to his own pet theories, and it cannot therefore be taken into serious consideration when dealing with a subject upon which our knowledge is so incomplete. The onus of proof of spontaneous cure rests upon the credulous, and until this truth is established we must not let it stand in the way of unremitting efforts to discover a real cure for cancer. Mr. Sampson Handley says: " That although several cases of spontaneous cure have been recorded, the disappearance of a cancer which has clinically reached its full development, has never yet been absolutely demonstrated by a complete necropsy with a negative macroscopic and microscopic examination of the tissues for cancer." These remarks, of course, apply with equal force to all cases of reported cure, either following operation or any other method of treatment. There exists no report of a spontaneous cure having occurred in a case in which no method of treatment was adopted.

A statement has been made that the literature of cancer therapeutics does not contain the record of a single fact which cannot be paralleled among the histories of untreated cases. I would like to ask where we are to find the histories of untreated cases? So far as I am aware none have been recorded, and it is next to impossible to imagine that the belief in spontaneous cure is so great that any surgeon would be justified in refusing treatment on the grounds that a spontaneous disappearance might occur. It is admitted that the cancer process is but a slight deviation from the normal. We may therefore assume that a cure may possibly be brought about by a slight alteration in the environment of the diseased cells. Under these conditions, it is therefore equally unscientific and absurd to accept the theory of spontaneous cure, as by so doing, we are apt to place a barrier in the way of progress and further investigation.

I have already shown that it is next to impossible to obtain a full and complete diagnosis, if the best methods of dealing with the disease, as proved by practice, are to be secured. This applies equally, of course, to cases treated by other than surgical methods, and this fact is taken full advantage of by those whose treatment of the disease begins and ends with the knife. During the last ten years I have treated a large number of cases of various types of malignant disease, and in a few instances a clinical cure has resulted. In all these cases the clinical appearances and histories went to prove beyond the shadow of a doubt the existence of malignancy. Yet, in each instance when I have exhibited the cases before one or other of our medical societies, I have been told that there must have existed a mistake in diagnosis, notwithstanding the fact that at least in one instance I was able to show microscopic evidence of malignancy.

Whilst I am ready to admit that there is a tendency on the part of investigators in new branches of research to over-estimate the value of the agents they employ, this is more than counter-balanced by the scepticism of those who, overwhelmed by the achievements of modern surgery, can see nothing beyond it. "There are those," says Doctor Paris, "who cherished a spirit of scepticism from an idea that it denotes the exercise of a superior intellect." There can be little doubt that scepticism unrestrained constitutes a barrier to progress, and in dealing with a disease like cancer, whilst it should be our earnest endeavour to protect sufferers from quacks and charlatans, we must be careful that our enthusiasm in this respect does not have a tendency to hamper progress. Dugald Stewart has said that unlimited scepticism is as much the child of imbecility as implicit credulity. It must be admitted that the attitude of the general body of the profession towards new methods of treatment is one of marked indifference, and there can be no doubt that this attitude has, to a great extent, acted as an incentive to over-estimation. The existence of this Society, together with the provision of a Section of Electro-therapeutics, at the Annual Meeting of the British Medical Association, has done much to establish in the minds of the general body of the profession, confidence in the good intentions of those engaged in the investigation of the application of physical methods, to the relief of pain, and cure of disease. Whilst many of the agencies at our command have failed to produce the results predicted for them, and while some, which were at one time lauded to the skies by the over-enthusiastic, have been relegated to the scrap-heap, the fact remains that others have gained alike the confidence of the profession and public, and have proved themselves of immense benefit to humanity.

It is not my intention to enter into a discussion on the many theories which have been advanced relating to the causation of cancer, but taking into consideration the fact that irritation is one of the most common causes, and that this can to a certain extent be avoided, it follows that certain preventative measures are at our disposal. It is acknowledged that many benign growths have a tendency sooner or later to become malignant, and that they are specially prone to do so after an operation, and more especially when the operation involves certain regions of the body in which cancer most commonly manifests itself. Of the many benign tumours which show a special tendency to become malignant, warts, moles, dermoids, fibromata of the skin, uterine myomata, and papillomata may be specially mentioned. Warts and moles upon the face are so prone to develop epithelioma or rodent ulcer, that under all circumstances they should be removed, preferably by a non-operative method. In looking through my notes of the large number of cases of rodent ulcer and epithelioma, which have passed through my hands during the last twelve years, I find that in a very large percentage there is a history of the disease having started from a pre-existing wart or mole. Warts and moles upon the face are of necessity irritated to a much greater extent than are similar growths upon the protected portions of the body. This increased irritation is mainly brought about by the rough usage to which the face is submitted during the process of washing and drying, and in addition, the irritation is kept up by the frequent deposit of dust and dirt upon the growths, whilst they are also exposed to frequent changes of temperature. Growths in this position are still further irritated by the habit of picking and scratching, which is common in persons affected with them. It has been amply proved that the presence of dust and dirt and uncleanly habits generally, are potent factors in the causation of cancer. I cannot too strongly advocate the removal of such growths, and taking into consideration the fact that cancer frequently follows operation for the removal of benign tumours, I would advise that these growths be removed by one or other of the methods at our disposal, which do not entail the use of the knife. Many elderly persons prefer to retain pre-cancerous growths upon their faces rather than submit themselves to operation. We have at our disposal now several methods of removing these growths, which entail little more than slight personal discomfort, and there is, therefore, no excuse for retaining a condition which has proved to be an immense source of danger. Amongst these agencies may be mentioned X-rays, radium, carbon-dioxide of snow, and diathermy. It may be argued that

malignant growths are quite as likely to appear in the scar-tissue produced by the above-mentioned methods as they are in the scars produced by excision, but, inasmuch as, up to the present, this is not proved, and that, therefore, the real objection to having them removed ceases to exist, I have every confidence in recommending these preventative measures.

During the last twelve years a very large number of cases of malignant disease have been treated at my hands by one or other of the physical therapeutic agents which occupy our attention. By far the larger number have been treated with the X-rays, and although I freely admit that the results achieved are, on the whole, disappointing, I must confess that in the X-rays we have an agency which promises (when their properties are better known, and their methods of application are improved) to place increased power in our hands of fighting this terrible disease. No therapeutic agents known offer a more remunerative field for continued research than do the X-rays and radium. Their action upon certain malignant growths is so marked that I feel we are fully justified in continuing their use, and in endeavouring to modify our methods in the hope of increasing our knowledge of their methods of action. Experience goes to prove that, in by far the larger majority of cases, the X-rays relieve pain, retard growth, dry up ulcerating surfaces, prolong life, and generally improve the health of the patient. In addition, they occasionally bring about absorption of the growths, and produce, at any rate, a symptomatic cure. Their method of action appears to the casual observer to be exceedingly erratic. This is undoubtedly due to our lack of knowledge, for it must be admitted that differences in environment and otherwise must exist even in two cases, which to all intents and purposes are similar. Given, for instance, two cases in which secondary nodules have appeared after amputation of the breast; even if both are submitted to the same treatment, in one case the nodules will entirely disappear, whilst in the other no observable effect is produced. Much stress has been laid on what is called the selective action of these agencies, and I cannot help thinking that this theory is responsible for much misconception. If we are to believe all that has been said concerning the selective action of X-rays and radium, we shall have to admit that, at any rate, in the case of radium, it has a selective action which amounts almost to an intelligence, for it appears to be able to select just the particular cell which the operator desires. Taking it for granted that in a healthy body the normal tissues ever resent the invasion of disease cells, and that there is ever present a

tendency to destroy them, it appears probable that in some way or other the normal tissues may be so strengthened that increased fighting power is accorded them, and that in some instances they are enabled to conquer and utterly destroy their natural enemies; that there may exist in every case a limited period when appropriate stimulation of the normal tissues may give them the encouragement which is required to secure victory.

The evidence at hand that the X-rays have a greater and more deadly action upon diseased cells than upon normal ones is certainly inconclusive, and in many instances disproved; whilst we have much evidence to show that they have a greater power of destruction upon normal cells than upon diseased ones. For example, malignant growths have over and over again arisen as the result of prolonged and unscientific exposure, and in the early days when the normal areas surrounding disease patches were imperfectly protected, I have more than once noted destruction of the former, whilst the latter to all appearances were unaffected. We have much evidence to prove that the good effects produced by the X-rays are not so much due to the destruction of the diseased cells as to the stimulation of the normal ones, and that certain alterations in the blood are in no small measure responsible. It is a curious fact that several observers have noted alterations in parts of the body situated at a considerable distance from the part irradiated. For instance, in a case of Hodgkin's disease, I have noted a marked diminution of the glands in the inguinal region follow exposure of the cervical glands, whilst a patch of lupus upon the leg has disappeared during the treatment of the face. Personally, I have obtained no proof of the existence of a selective action, and I consider that this is contra-indicated by the fact that absolutely certain results can only be secured on healthy tissues.

To our ignorance of the methods of action of the X-rays and radium must be ascribed our inability to use them to the best advantage, and it must follow that further investigation will increase their usefulness. Recent discoveries concerning the action of filtered and reflected rays bid fair to place in our hands a more efficient and scientific method of using them, and, from the results produced, I am of opinion that we are fully justified in continuing to use them in such cases as previous and prolonged experience have taught us to expect satisfactory results.

During the first five or six years in which I applied the X-rays in the treatment of cancer I now know that the cases treated were not such as were likely to secure benefit. They were in nearly every

instance the derelicts of the surgeons and had progressed to such an extent that therapeutic measures were useless, and beyond the relief of pain and the occasional drying up of sloughing and ulcerating surfaces, no results could possibly be looked for. In treating these cases I curiously enough adopted much the same methods as I do to-day, notwithstanding the fact that at that time we had no method of measuring the dose administered. Our methods of measurement of dosage are even to-day inefficient and unsatisfactory. At the same time we are now in a position to administer a dose with something approaching scientific accuracy.

In the early days, following the dose which I had proved experimentally to be capable of producing absolute destruction of the tissues, I adopted the plan of giving a time exposure with a tube, which I judged to be suitable for my purpose by the colour produced when actuated by a spark of known length. I repeated these exposures at intervals until signs of irritation were manifest, when I gave my patient a rest for such a time as it seemed advisable. To-day I adopt the following methods of measurement: I use a dipper-break and tachometer, and I pass through my tubes as near as possible 1 ma. of current. I choose a tube of a degree of hardness which I deem suitable for my requirements, and I filter, or not, according to the depth of the tissues I wish to treat. I prefer to administer a small dose at frequently repeated intervals rather than a large one at long intervals, as I find it more satisfactory to administer two full Sabouraud doses in this way rather than one full dose at a sitting, and wait to note results. In some cases I treat the patients every day, in others at intervals of two or three days, and on each occasion I give from one-quarter to one-half a full measured dose. Curiously enough this dose is very nearly identical with that given in the early days before any method of measurement was adopted. To filter the rays I use sheets of aluminium of varying thickness, and have tried, with some measure of success, a double screen composed of a thin sheet of aluminium and one thickness of silver foil. I enclose my tube in a lead-glass shield, and use lead-glass adapters to protect the healthy tissues surrounding the diseased area. I can administer a large number of exposures without producing any ill-effect, and in some cases I have had patients under treatment for as long a period as three years with satisfactory results.

It is not my intention to bore you with the histories of a large number of cases. I shall be content with picking out one or two which, in my opinion, point to a moral, and which justify me in concluding

that, whilst I cannot hope to secure a cure, I can modify the symptoms, prolong the life of the patient, and render the condition at least tolerable.

*Case I.*—Mrs. F., aged 46, was sent to me for treatment in May, 1904. Her medical man in a letter to me stated that, in his opinion, the patient would live but a few months, but that he thought the X-rays might possibly relieve her pain. She first discovered a growth in her left breast early in 1903, and consulted Mr. Jordan Lloyd, who advised immediate and complete excision. This was carried out. It was a sweeping operation, in which the whole breast, including the pectoral muscles, was removed, and the axilla cleared out. Since the major operation she had had two recurrences removed at intervals of a few months, the last operation having taken place only four months back. At the time of her first visit to me there were two recurrences, one just beneath and one just above the left clavicle. Beneath this there was a space about the size of the palm of the hand in which the skin was tightly bound down to the ribs and intercostal muscles. The left arm was much swollen, œdematous, and painful. I commenced treatment by giving her a quarter pastille dose three times a week. After eight administrations the recurrences began to subside, and after twelve, as the skin over them was slightly red and much pigmented, I gave her a rest of several weeks. During this period the recurrences had diminished to half their original size, the pain had gone, and the general health of the patient was much improved. The treatment was repeated at intervals and no signs of fresh recurrences appeared. After eighteen months' treatment I lost sight of her for two months, when she again visited me. Over the position of the lower recurrence was an open ulcer which extended for about 1½ in. over the previously mentioned patch of tightly bound down skin. She stated that a small abscess had formed, and that, under the advice of her medical attendant, she had continually poulticed it until it broke down. I recommenced my treatments, and at the end of six weeks the ulcer had healed with the exception of a small sore immediately beneath the clavicle, which was kept from healing by being overlapped by a roll of fat which projected over the clavicle. All attempts to heal this failed. The patient's health, however, continued good, and there was nothing in her appearance to suggest that she was suffering from a serious disease. In 1907 she caught a severe cold, which was followed by an attack of bronchitis, and I only saw her occasionally for a period of over two months. Her condition suddenly became much worse. On examination I found signs of a growth about the size of an orange in her left lung. This was confirmed by Dr. Suckling, who agreed that it was a secondary growth. She lived only three weeks longer.

The chief points to be noted in this case are: (1) No further recurrences occurred; (2) disappearance of the recurrences; (3) healing of the ulcer; (4) disappearance of pain; (5) improved general health; (6) prolongation of life from three months, as predicted, to three years.

*Case II.*—Mrs. A. B., aged 43 (patient of Dr. Bradley, of Coventry). Breast removed over twelve months previously. Entire surface covered with innumerable recurrences varying in size from a hazel nut to a millet seed. Patient badly nourished, suffering great pain, inability to sleep, accompanied by profuse sweating. Liver much enlarged. After twenty treatments the recurrences entirely disappeared, pain was relieved, and general health improved. The abdominal symptoms slightly increased; there were signs of fluid in the abdomen. The patient was sent home, and told to come again on the slightest sign of recurrence. I never saw her again. I am informed that, although she lived for over two years, the recurrences never reappeared. The abdominal enlargement increased for a time, and she was subsequently tapped on several occasions, a large quantity of fluid being taken away. She died of a secondary growth over two years after giving up X-ray treatment.

The chief point to be noted in this case is the entire disappearance of recurrences in a most unfavourable case.

*Case III.*—Mrs. J., aged 30, patient now under treatment. This young woman had her right breast removed nine months back. Recurrence first showed itself at the end of five months. Seven weeks ago she was sent for X-ray treatment. She had one large growth of the size of an egg, the skin over which was not implicated, and beneath this a small flat recurrence of the size of a halfpenny, which involved the skin. After eight treatments the large growth has entirely disappeared. The skin over it being now loose, puckered, and deeply pigmented. The lower growth is slightly diminished in size.

I could quote dozens of similar cases, but these three are sufficient to prove my contention that in the X-rays we have a therapeutic agent capable of producing results which, with perhaps the exception of radium, no agency at our command is capable of doing. In other cases in which the clinical appearance and symptoms were apparently similar, no effect was produced under apparently the same conditions of treatment. It is, of course, impossible to secure exactly the same conditions, and one is led to think that to account for these varying results we must either admit that the conditions of treatment were not similar, or that there must exist some difference in individual susceptibility on the part of the patient. We have, however, to face facts, and so far we must reluctantly admit that the differences in behaviour are due to causes at present unknown.

During the last five years I have irradiated a large number of cases of cancer of the breast immediately after operation in the hope that, by so doing, the tendency to recurrence might be averted. What the results have been I am at present unable to state, and many years must elapse

before we shall be in a position to form an opinion as to the advisability, or otherwise, of continuing this method.

One of the greatest difficulties which stand in the way of our arriving at an ultimate conclusion as to the effects produced by X-ray treatment arises from the fact of our inability to follow up the cases to the end. In hospital practice, directly the patients get a little better they cease to attend, and either do not turn up again or wait until the growth of the recurrences is so far advanced that they have reached a stage where further treatment is useless. In private practice the patients come only for special treatment, and we lose sight of them when they are once out of our hands. This state of things, which I am afraid cannot be remedied, greatly hampers our work and renders it more and more difficult.

Recent discoveries regarding the action of secondary rays, which emanate from metallic and other substances, bid fair to open up a new field of research of the greatest possible importance. Professor Barkla has discovered that these rays are much more absorbable and more intensely ionizing than the direct rays from the tubes themselves, and that the exact quality of ray which we desire to bring about a given result can be obtained at will. I am now engaged in making experiments in this direction, and although at present I am not in a position to make a definite statement, I must admit that the results produced are satisfactory. Dr. William Mitchell, in an article published in the *British Medical Journal* of December 31 last, suggests that after operation for amputation of the breast, and before the wound is closed, the whole surface should be dusted over with sterilized carbonate of bismuth, which would become incorporated with the tissues at the very points where recurrence would be most likely, and thus would be produced the very condition which Professor Barkla says is the ideal one for X-ray treatment. Granting that the bismuth thus used would not act as a direct irritant to the tissues, and would not produce any constitutional disturbances, this suggestion appears worthy of consideration, and I would like to know the opinion of those present as to the advisability of trying it.

I have found that the dusting over of ulcerating surfaces with carbonate or oxychloride of bismuth certainly modifies and renders more intense the radiations, whilst even in the case of unbroken skin (such as is found in ringworm), the effects of the rays are enhanced and the necessary exposure shortened.

Many experiments in this direction suggest themselves, in which no harm to the patient could arise even if they proved unsuccessful. Inert

salts of the various metals could be applied in like manner, whilst the dusting over with finely powdered metals themselves is worthy also of a full and complete trial. The photographic effects of these secondary radiations can be easily demonstrated, when great differences in the actinic value of the secondary radiations will be observed.

The radiograph I now show was produced by turning an Ilford special X-ray plate face downwards upon circles of various metals during exposure to the rays emitted from a hard tube. It will be seen that the resulting images differ very considerably in density, proving that the rays reflected differ in quality.

I cannot but think that a continuation of this line of research will yield us knowledge of considerable value, and I hope shortly to see published reports from the members of this Section proving the value of the suggestions made.

In cases of malignant disease which fail to react, or in any way respond to X-ray irradiation, I cannot help thinking that our methods of administration must be at fault. It has been shown that by slightly altering the methods different results are obtained. In other words, the exact kind of radiation required to bring about a cure in a given case can only be secured as the result of more complete and effective methods of measurement, and a fuller knowledge of the action of the rays under varying conditions.

It was my intention to have dealt briefly with the various forms of malignant disease which I have treated, but want of time will prevent my doing this. I should, however, like to say a few words on the treatment of epithelioma. The statistics published relating to the cure of epithelioma, are always misleading, from the fact that on the Continent, and in America, no distinction is drawn between what we call rodent ulcer and epithelioma. We, in England, attempt to separate these two diseases, and to draw a distinct line of demarcation between them. I have already published the histories of several cases in which excellent results have arisen from X-ray treatment. The marked action of the rays in many of these cases leads me to the conclusion that they should be administered, in every case, prior to the taking of operative measures, and although I would not care to be so emphatic as Mr. Richard J. Cowen, who says, "A surgeon who operates in the case of epithelioma without first employing the X-rays to limit the growth, and destroy any glandular affection which may exist, accepts a very grave responsibility," I certainly urge most strongly the following out of this method.

My experience with radium is mostly confined to the treatment of epithelioma, owing to the fact that the amount of the substance at my command is too small to allow of its being effectively used in the treatment of large and deep-seated growths. In one case, in particular, I have been particularly struck with the excellent results secured. A gentleman, aged about 50, applied to me for treatment of a growth on his lower lip, which he refused to have excised or to have examined microscopically. This growth, which was about the size of a hazel nut, first made its appearance eighteen months previously, and, despite continued treatment, refused to heal. Clinically it exhibited all the appearances of an epithelioma. It was ulcerated upon the surface, and was indurated at its base. It was treated with a button containing 1 cgm. of radium-bromide, which was applied for one hour and a quarter at each sitting, no filter being used. In all, six such applications were administered, with the result that within two months the growth had entirely disappeared, leaving an almost imperceptible scar, whilst the lip itself was soft and pliable and exhibited no signs of there having been anything wrong with it. Whether or not this was a case of true epithelioma I cannot say, but that it was a grave condition which called for immediate and energetic treatment there can be no doubt, and that it was cured is a matter of certainty.

In the cases in which I have used radium with success I must admit that the results secured are excellent. Time alone will prove whether they are better than those achieved by X-rays, and I would like to get an expression of opinion from those present this evening as to whether a recurrence is more or less common, after radium treatment, than it is after treatment with the rays. We have at our disposal two other physical agencies which bid fair to take an important part in the treatment of malignant disease. The first of these is carbon-dioxide snow, upon which a paper of mine will be shortly published. The second is diathermy, a method of treatment which bids fair to produce excellent results, and of which I hope to be able to say more on some future occasion.

In conclusion, whilst I cannot claim that any of the agencies I have mentioned are capable of curing cancer, the results achieved are sufficiently promising to spur us on to further and renewed energy in an attempt to apply them with more scientific accuracy, in the hope that they may prove of more benefit to humanity in the future than they have done in the past.

## DISCUSSION.

Dr. FRANK FOWLER said Mr. Hall-Edwards had made a very good fighting speech. He thought there was no doubt that we should not interfere with the surgeon who must be permitted to treat the case untrammelled in any way; our part should be to aid him in curing disease. There seemed to be two chief factors in the X-ray treatment of cancer: first, the resistance of the patient; second, the quality of the rays. He regarded the first of these as the more important. Up to about five years ago, when the Society before amalgamation had its last discussion on the subject, the patients sent for such treatment were what Mr. Hall-Edwards described as derelicts; a few inoperable cases, and a few who, for some cause, refused operation. The results of those treatments were that frequently there was relief from pain, and occasionally there was atrophy of the primary growth. And we must accept this fact, whether we believed in spontaneous natural cure or not, that atrophy occurred more frequently when the patients had X-ray treatment. Of course the results were, on the whole, distinctly disappointing, and he wished to emphasize the fact that the successful treatment of cancer to-day depended upon getting the cases early. Cases should be sent before any recurrence took place. The raying of recurrences now gave better results, and a fair proportion of them disappeared under treatment. He had had two or three cases of epithelioma of the lip where there had been recurrence in the angle of the mouth after excision of the primary growth, and he had seen the ulcer heal up completely under X-rays in two cases. Cancer of the breast seemed to be the most encouraging field for X-ray treatment; the deeper parts of the body were practically beyond the reach of the rays. He was glad to hear that Mr. Hall-Edwards had done so much prophylaxis, because it was desirable to have the patient when his natural resistance was at its best. It meant an immense amount of work, but if surgeons would send every case to be rayed directly after operation, he thought that in course of time the results would be better than they were now. With regard to the quality of the rays, the opener mentioned secondary radiations and the experiments made concerning them. At present they were not obtainable in sufficient quantity to treat cancer. Recently a letter appeared in one of the journals giving a warning as to the dangers of using bismuth meals in stomach cases for radioscopy. He believed the fact that ill-effects were not obtained after bismuth meals must prove one of two things: either that the secondary rays from bismuth were produced in such small quantities that they could not affect the mucous membrane, or else that the mucous membrane was insensitive to those rays. He thought the absence of harm following raying after bismuth meals discounted the value of packing a wound with bismuth, which surgeons would look upon askance. With regard to the rays used in the X-ray tube, sometimes, as when treating ulcers, there was a chance of

using the whole of the rays which came outside the glass tube. He did not think there was any difference in the effect on a tumour whether the skin was there or whether it was not, as he did not believe the skin cut off any rays which were useful in the treatment of cancer. He now used a filter which cut off still more of the softer rays, even when treating an ulcerated surface. He thought his results were now better, for the reason that it took longer to produce a pastille change with the filter than without it; there were more useful rays penetrating to the part. He now used a filter of aluminium, placed close to the tube, which enabled him to have a pastille underneath and measure the rays used. He was indebted to Dr. Finzi for calling his attention to this method. He used a small tube, with alternative spark-gap of 12 cm., with 1 ma. current, and by carefully seasoning the tube he found that he could use a tube for months, for case after case, without running the vacuum down. His practice was to give a full pastille dose, and repeat this in a fortnight; or else to give half a pastille once a week. He rayed the patient in as many directions as possible. He would be glad if Mr. Hall-Edwards would say what he considered the *minimum* dose for prophylaxis. It was important to decide that. He gave a pastille dose of filtered rays to the wound, and a pastille dose to each neighbouring gland area, and repeated this in three months.

Dr. N. S. FINZI: Having devoted the greater part of my time, during the last two years, to the study of both the methods under discussion, I have had exceptional opportunities of judging of their respective merits and limitations. I must preface my remarks by a few words on selective action. Some members of this Section have denied the existence of this. Now, selective action means the destruction of some cells, the cancer cells, by a dose which does not damage other cells—the healthy tissue cells. To say that the cancer cells have less resisting power, or that the normal tissues are stimulated while the cancer cells are not, is merely putting it another way round; but to say that all destructive agents are equally effective in destroying the cancer cell and leaving the healthy tissue is, in my opinion, ridiculous. Why, we should be able to destroy growths by injecting an antiseptic into them! The difference in action of various agents is easily seen by comparing three methods of treatment of rodent ulcer —radium, X-rays, and carbon-dioxide snow. With filtered radium rays, rodent ulcer can be cured, in practically every case, without the production of any inflammatory reaction; with X-rays the disease can sometimes be cured without producing inflammation; with carbon-dioxide snow, on the other hand, an acute inflammatory reaction is bound to be produced, an evidence of damage to healthy cells, and some people even go further, and obtain a slough: that is death, not only of the rodent ulcer cells, but of healthy cells also. To anyone, too, who has worked with large quantities of radium, the difference between its selective action and that of X-rays is very apparent. I venture to think that, if we worked with a mass of $\gamma$-rays at all comparable to the mass of rays given off by an X-ray tube, the treatment of cancer by X-rays

would cease to exist. This would require about 3 kg. of radium, £48,000,000 worth at the present price, so that we are far from its attainment. This selective action influences us very greatly in deciding whether to use X-rays or radium. It is increased in both cases by filtering the rays through metal; but with radium the composition of the rays is altered, for the $\beta$-rays are cut down while the $\gamma$-rays are left; while the effect on the X-rays is only to increase the penetrating power. The amount of difference of action, both of radium and X-rays, on the healthy and the diseased cells, varies greatly with different growths; and in some forms of cancer—e.g., epithelioma of the tongue, it appears to be almost, if not quite, absent. It is even possible, though I have hitherto seen no definite evidence of it, that in some forms of the disease the dose which damages a healthy cell may leave the cancer-cell intact. I think it more probable, however, that if a cancer is stimulated to grow faster, it is due to insufficient dosage in a case where the selective action is only slight. As only small quantities of radium can be obtained (I use 205 mg. of radium-bromide, and consider this small) it has to be placed pretty close to the tumour to give the requisite dose in a reasonable time. Accordingly it is difficult or impossible to treat tumour growths of any great size or depth. I reckon that 4 in. from the treatment point is about the limit in the most favourable types of growth, that is, where the selective action is the greatest. This must mean that in some cases the tumour is destroyed by a dose twenty times smaller than that which damages the skin. Few types of growth are quite so favourable as this, though I have fortunately had some. Accessibility plays a not unimportant part in determining which rays to employ. In some situations—e.g., œsophagus, bladder, rectum, &c.—growths are far more accessible to radium than to X-rays. We must also take into account the condition of the patient and the general behaviour of the particular type of cancer as to dissemination, rapidity of growth, and so on. If, then, we come to the conclusion that it is a form of cancer suitable for ray treatment, and that the situation of the deposits does not preclude such treatment, we have to strike a balance between the greater selective power of radium and the possibility of saturating the tumour to a greater extent with the less potent X-rays. It seems to be quite unnecessary that the rays should be absorbed by the tumour, because the $\gamma$-rays are practically entirely unabsorbed, and yet they are the most powerful destroyers of cancer cells that we know. Similarly, hard X-rays and filtered X-rays have a better effect than soft ones, even on the most superficial growths. I have been able to test this in the treatment of multiple skin recurrences of carcinoma in the same patient, treated in both ways. The use of soft X-rays for superficial cancers is therefore much to be deprecated, and Barkla's suggestion to inject bismuth into a tumour is only likely to prove of value if the secondary rays have different properties to the primary. As to technique, I agree with Dr. Fowler in regard to the more efficient action of filtered rays in rodent ulcer and in his employment of maximal doses once a fortnight. With radium the use of large quantities is essential, anything less than 50 mg. of bromide is mere playing with it in the case of cancer. I do not

even consider my 205 mg. nearly enough. The rays must be filtered through at least 1 mm. of lead or platinum for carcinoma, though less is necessary for rodent ulcers. A maximal single exposure must be given, and repeated every six weeks. With X-rays similar principles hold good. Our great trouble is that the makers cannot supply tubes which will take, without damage, 10 ma. for five or ten minutes at a time. I use Gundelach or Cossor radiator tubes as hard as I can, and pass 2 to 2½ ma.; the patient is 9 in. from the tube, and the pastille 4½ in., and the sheet of aluminium is between the tube and the pastille. I give 1¼ or 1⅓ Sabouraud dose of filtered rays at a sitting, and repeat this every fortnight. The Sabouraud dose takes from three to six minutes to give, according to the tube, and I think better results are obtained by giving it thus rapidly, though the results to the tubes are not beneficial. I have not used more than 2 mm. of aluminium, but with an improvement in the tubes I hope to do so. In treating cases prophylactically one should give exactly the same dose as if there were an actual tumour there, and one should continue the treatment for a considerable time. I continue for nine months once a fortnight; then, after a rest, I give it for another three months. So far I have had no recurrences after prophylactic treatment with X-rays.

Mr. THURSTAN HOLLAND said he had had a very long experience, but entirely with X-rays—not with radium. Although during the first five or six years of X-ray work the treatment was very disappointing, during the last few years the results seen in cases where he had had a much freer hand in X-ray treatment had made him more optimistic. Now, there was more control over the apparatus and a better knowledge of what the operator was doing. In the early days of X-ray treatment most of the cases were of the worst type for the rays, and they were treated tentatively; the patients came for a few weeks or months and then were not seen again. But since they had been persuaded to come for treatment for many months—he had had some for three years—he had been struck by the tremendous improvement in many cases. He had been much interested in the remarks about secondary rays from metals. When he first heard of this last year he was much impressed by the great possibility of such secondary rays, but he did not now feel as hopeful about them as he did then. The difficulties of using those secondary radiations were very great. Moreover, those rays had but small penetrating power. The question of filtering was very interesting, and he was in accord with Mr. Hall-Edwards and Dr. Finzi that rodent ulcers and skin affections generally did well, even if the rays were filtered. He used three or four layers of boiler felt. That was unscientific, perhaps, but he had not burnt anybody yet with X-rays. He had tried prophylactic treatment lately, as far as possible, treating cases immediately after operation. It was impossible at present to lay down any law with regard to it, but the treatment should extend over many months; the least he would suggest would be a course of three months, then an interval, then another three months. He did not like massive doses once a fortnight; he preferred to divide the dose into two or three sittings a week—a quarter or

half a disk dose three times a week; but that was purely a matter of observation and experience. All had had cases in which there were good effects from X-rays, or radium, or carbonic acid. During the last three or four years he had had three or four cases which he found it difficult to explain unless X-ray treatment had had a marked effect. In Liverpool, Mr. Paul, a well-known surgeon, and authority on cancer, as well as a brilliant pathologist, was persuaded that there was great improvement in many cases of carcinoma of the breast treated by X-rays. Mr. Paul had had some of his cases X-rayed after operation, and was satisfied with the results. A patient with very malignant type of cancer of the breast, with a recurrence in the tissues below the clavicle over a wide area, and with a lump which could be seen, was sent to him (Mr. Holland) with a request to keep her under the influence of the rays. For the last three years that lady had had two or three doses of X-rays every week. She also had had another operation, Mr. Paul cutting down underneath the clavicle, and finding the axillary vessels embedded in the growth. At present she was apparently well, and there was no evidence of the progression of any malignant growth. Another striking case occurred in the person of a stout elderly lady who had a neglected fungating breast tumour. He sent her to a surgeon, but she took the anæsthetic so badly that only a partial operation was done. In two months she came back and a large lump could be felt in the axilla attached to muscle and tissues. She would not have a further operation, and so he reluctantly resorted to X-rays and continued for five months. At the end of that time he persuaded her to have another operation, and then the large mass was found to be irremovable. It was cut away as far as was possible and the wound sewn up. That was two or three years ago. He saw the lady the other day, and she had no sign of malignant disease remaining. In both cases the diagnosis was confirmed by the microscope. However pessimistic one might be, such cases were impressive. He recommended small doses of X-rays, long continued, even after cure seemed to be complete, for he felt sure that such a course would tend to prevent the return of malignant growth in many of the cases and retard its growth in others.

Dr. WILLIAM HILL said that though not a radiographer he could speak with some confidence on the value of radium in cancer, as with the help of Dr. Finzi and his adequate supply of radium he had treated twenty cases under his care suffering from malignant disease of the pharynx and œsophagus. When he first heard of radium being applied for cancer of the throat he, like others who knew little about radium, was very sceptical as to its value. He read in April, 1909, however, of some sufficiently good results in three cases in the practice of a French laryngologist of repute (Guisez), and felt it ought to be tried. The œsophagus was in most cases inaccessible to surgery but was very accessible to a radium tube. The French authority used 50 mg. of radium-bromide, but only employed it for three hours at a time. The more he knew about the action of radium the more he was surprised at Guisez's results with

such short exposures, but perhaps the explanation lay in frequency of application. The results obtained by Dr. Finzi in some of his (Dr. Hill's) cases with large quantities and long applications of radium were in some instances truly astonishing. In cancer of the œsophagus, in very tight strictures in which the stricture was not very long but was very definite, radium, in spite of its uncertain action, was no doubt *the* thing to use. It was of no use to employ one tube where there was a big growth and much dysphagia, unless it were applied for a long time and in large quantities. In some instances of extensive growth a row of radium tubes, arranged tandem, totalling some thousands of pounds worth of radium, might be required. But one would have to be careful that one of the more powerful tubes did not come opposite a part of the œsophagus where the wall was thinned by disease, or a perforation might result, in spite of screening. Of the twenty cases of cancer of the œsophagus which the speaker and Dr. Finzi had treated, many had derived substantial benefit; many, though dead, had died, cured of their dysphagia; three early cases had been shown before the Laryngological Section[1] as temporary cures: that was, they had at first been only able to swallow fluids, and unequivocal objective evidence of malignancy had been found on endoscopic examination, but later they had resumed ordinary diet and he had been able to pass the œsophagoscope, with ease, right through the constricted area; he had asked laryngologists present whether they could see evidence of malignant disease—and of course he would not have shown them if there had been any such evidence. He did not say they were cured for all time, but the growths had disappeared and they had resumed ordinary diet and were back at their work, one of them having put on 3 st. in weight. A fourth man, attending St. Mary's Hospital, had as yet had only one application of radium; he was referred to the Throat Department for treatment by Mr. Warren Low, and was in a very bad way. The application was made in December last for fourteen hours, in the cervical œsophagus, very high up, and the next day for sixteen hours, deeper down in the neck externally. When he first came he swallowed fluids only with difficulty. He had returned to the out-patient department that very day, so much improved that Dr. Hill did not at first know him. He had put on 1 st. in weight, was back at his work, and looked healthy and strong. How long the benefit would last he could not say. One man, with dysphagia from pressure, had a large growth in the neck—an endothelioma—and was shown before two of the Sections of the Royal Society of Medicine. The cervical mass was as large as half a cricket ball, with extension into the thorax, and microscopical examination verified its nature. The growth had now practically disappeared, and though there was some hardness in the planes of the neck the patient now swallowed perfectly and had remained well for one year. Dr. Finzi usually made an initial application varying in duration from ten to twenty-four hours in the gullet, and then waited for six weeks until the γ-rays reaction had passed

[1] *Proceedings*, 1910, ii (Laryng. Sect.), pp. 25, 39.

before making the next application. He would like to hear opinions on this question of dose, more especially as to the frequency of the dose. He did not know why radium, if properly screened, should not be applied for fifty hours in all, intermittently during several days, nor why it should not be extended even to one hundred hours. At present, perhaps, neither in private practice nor in hospital could the radium available be monopolized in that way. The longest continuous application he had experience of in the gullet at St. Mary's Hospital was twelve hours, with, a day or two later, ten or twelve hours more, but in a private case, with cancer at the lower end of the gullet, two tubes arranged tandem had been continuously applied for twenty-eight hours, with marked benefit, so that a permanent intubation tube, which could not be passed previous to the radium application, was inserted four weeks later with the greatest ease during the period of reaction. Would it be feasible in a long growth to put radium, properly screened, into various depths of the œsophagus for, say, twelve hours a day consecutively for a month without causing serious trouble?

Dr. ARMSTRONG (Buxton) asked whether Mr. Hall-Edwards had had experience with the internal administration of radium emanations in water. His own experience of it in malignant disease had been small, and only over a limited period. He had treated four cases of inoperable cancer, all pelvic. He used radium emanations dissolved in water, produced by the method of Dr. Faubermann, of Berlin. It was of the strength of 8,000 maché units per litre, and from 1 to 3 litres were used daily. In all those cases there was an extraordinary alleviation of pain; when first seen the pain was so great that they were taking considerable amounts of opiates, which, however, were gradually reduced as the pain diminished. In three of the patients a rapid loss of weight was arrested, and in all four the general condition was improved. The first of the cases came under observation in June, one in August, and the other two in September. Some good results had been obtained in Germany, and perhaps Mr. Hall-Edwards would be able to say whether he had any experience of it. He would like the reader of the paper also to say what method he used of applying radium or X-rays in difficult cases of inoperable tumour of the bladder, especially of its anterior wall.

Dr. HORACE MANDERS said he would like to ask Mr. Hall-Edwards if from his numerous treatments of cancer by radium and X-rays, he could form any opinion as to the origin of the disease? Freund himself had concluded that X-rays and radium exerted very little influence over the growth of bacteria. He would like to know whether investigations had been pushed on to cells rather higher in the scale of life, such as saccharomyces and blastomyces. He had spent over six months in investigating cancer, and invariably found blastomycetes, which he cultivated from generation to generation in broth made from cows' udders. It occurred to him that the probability was that the origin of cancer was here, and that it would be found in the alternation of generation in a species allied to them. He noticed some

years afterwards, in a drawing by Mr. Henry Butlin of the earliest stage of cancer of the skin—what used to be called the precancerous stage, but what was now known to be cancerous—that it bore a remarkable resemblance to the drawing of de Bary, showing vegetable parasites descending into the leaf. Yet probably the observations were quite independent. He thought the search for cancer should be made in the biological conditions of structures akin to yeasts and blastomycetes, which had alternations of generations, such as was seen in the wheat fungus, in which there were no less than three alternations, one of which was in the barberry leaf. It would be very much better to approach the subject from this point of view rather than spend thousands of pounds in experiments on mice, the cancer of which differed so much from human cancer. There seemed to be some misconception about secondary rays. Sir J. J. Thomson did not fix silver as the one particular metal. What that authority said was that for penetration of the secondary rays, silver had the same power as the $\beta$-rays of radium. He thought the penetration of $\beta$-rays was much more than $\frac{1}{100}$ c.m., as mentioned by Mr. Holland. Sir J. J. Thomson also said that the rays sent out from metals were always homogeneous, whereas from an X-ray tube there were all sorts of rays, long, medium, and tiny, and it was the latter which were destructive. Filtration could be done with aluminium, yet Thomson said that no metal with a lower atomic weight than calcium (about 40) would throw off secondary rays. Therefore aluminium, as its atomic weight was only 27, would not throw off any. After Sir J. J. Thomson's lecture,[1] he had tried at the hospital all sorts of metals, with the view of shortening the time necessary to destroy ringworm. Iron, the atomic weight of which was 56, was ineffective. He also tried zinc and copper. None of the lower metals were of use. When he reached the higher atomic weights—arsenic and silver—he got very good results. There were two little girls who were sent to him as beyond all surgical aid. In one there was a mass of suppurating glands standing out from the neck. Under arsenic and rays at first, followed by silver rays, the mass had entirely subsided, and the patient was perfectly well. Professor Barkla did not get his secondary rays by passing the rays through a metal, but by hitting them off at a tangent. An electroscope placed some distance off was found to be discharged by those rays. The advantage obtained by employing secondary rays was that they were all of the same length. Among the rays emanating from an X-ray tube there was only one kind of any use. Therefore it was much better to have a smaller number of rays all of which were useful, than a larger number of which only a fraction was of use.

Mr. J. HALL-EDWARDS, in reply, said he thanked the members present for the patient hearing they had given him. With regard to the dose he would use for prophylaxis, the patient should be treated for at least three months, during which period at least four Sabouraud doses should be given. He would rather give small doses, if it could be arranged, than large ones at longer intervals, but often one had to do what the surgeon asked. Many

[1] *Brit. Med. Journ.*, 1910, ii, pp. 512-514.

cases which he had treated lately had simply received six treatments of half a dose each, once a week. It was desirable in many cases, especially in those which offered the best prospects from surgical procedure that two or three Sabouraud doses should be given prior to operation, as well as afterwards. Dr. Finzi had mentioned the selective action of X-rays and radium. If by this he meant to infer that the action was similar to that of arsenic when given in skin diseases he (Mr. Hall-Edwards) had little to say; but he objected to the statement often made that radium attacked just the cells which it was desired it should attack. He was glad to find that Mr. Thurstan Holland agreed with him in the fact that far better results were produced by short and frequently repeated doses, than by large ones. The method of filtration adopted by Mr. Holland might be very good, but he himself preferred aluminium, because by knowing the thickness of the filter, he could judge of the effects produced. He agreed that at the present time the results of treatment of cancer by X-rays and radium were far better than those of five or six years ago. One fact which struck him greatly in hospital and private practice was, that patients were by this means given a considerable length of life which they would not otherwise have obtained, even in cases where rays appeared to have done but little good. There were cases in which the rays scarcely seemed to benefit at all, cases in which the progress of the disease seemed so rapid that nothing would stop it. But in a case which was not too rapid, much retardation could be produced by the means under discussion. He was astonished to read, in a medical journal, a report of a statement by Dr. Finzi that immediately after the application of radium to stricture of the œsophagus the patient was able to swallow, and that therefore this result was produced by the radium. He had never seen any action from radium occur within three or four days after administration. The question had been put to him at a medical meeting by those who had read the statement if it was not possible that the mere pressing of a bougie against the stricture, and leaving it there for three hours, might have brought about the result. He thought this was the explanation of the case. In answer to the question why radium could not be applied for one hundred hours if necessary, he reminded members that radium applied to the skin produced a burn after a certain time, which was as fatal and as difficult to heal as was an X-ray burn. The discoverer of radium was killed by a cab, but it was possible that otherwise he might have succumbed to the radium burn on the abdomen from which he was suffering. He had not tried radium emanations in water; most of his work had been done with X-rays. He had been much impressed by the radium results he had seen in Paris, and was convinced that small amounts of radium were practically useless, except for minute lesions. With regard to the use of the rays for cancerous tumours of the bladder, he had not had much experience of those cases, but he had seen some results, which, however, he did not mention in the paper, as he did not know whether they were accidental or secondary. He had seen one or two cases of cancer of the rectum which had apparently received much relief from the

application of X-rays through the sacrum. It might have been that other methods of treatment were carried out at the same time, but certainly good results followed. With regard to secondary radiations, he thought Mr. Holland had made a mistake in regard to what was said at the Annual Meeting of the British Medical Association[1] as to the results which could be obtained. He (Mr. Hall-Edwards) thought it was a line of experiment which would bring forth much fruit. The main fact in his paper went to prove that in X-rays and radium we were possessed of agencies which had a definite effect on cancer, an effect which was produced by no other agent. The X-rays had now been in use for thirteen years, and although some of the results obtained earlier were not satisfactory, there remained the fact that those agents produced results which were brought about by no other means. Looked at scientifically, there seemed to be no reason why some other method of application, some further experiments in the same direction, should not be evolved to give even better results, and lead eventually to a means of real cure in cancer.

Dr. FINZI desired to offer a word of explanation. He was misreported in the statement attributed to him as to the rapid effect of radium in a case of throat disease.

## Congenital Elevation of the Shoulder (Sprengel's Deformity).[2]

By H. LEWIS JONES, M.D.

THE President showed photographs and skiagrams of this condition. He said the condition was not common, and was apt to be confounded with birth palsy when it was seen in newly born children. The characteristic feature was that the scapula on the affected side was at a higher level than was natural. The condition might be bilateral, but even in that case the position of undue elevation of the scapulæ was easily perceived.

In some cases of Sprengel's disease a bony connexion between the vertebral column and the inner border of the scapula had been detected by radiography, and the deformity had been corrected by an operation for the removal of this bony connexion. This bridge of bone, however,

[1] *Brit. Med. Journ.*, 1910, ii, pp. 512-14.

[2] Communicated at the meeting of the Section held on December 16, 1910.

was not always present. In the cases which he had had an opportunity of examining, there had been very strange malformations of the ribs; just as had been shown by Mr. Fairbank in his paper in the *Clinical Society's Transactions*.[1] In that paper Mr. Fairbank gave skiagrams of two cases. In both of them the ribs were irregular, and in one of them the defects in the development of the ribs were numerous and profound.

In the examples shown, Dr. Lewis Jones demonstrated the faulty attitude of the shoulder in an adult case by an ordinary photograph, and the presence of a bridge of bone in a skiagram of another, and of defective development of ribs in both cases. The defect consisted in unequal thickness in adjoining ribs, unequal interspaces between them, an appearance of bifurcation or of common origin of the third and fourth ribs, and the presence of an outgrowth of bone upon the fifth rib; the bridge of bone appeared to articulate with the first dorsal vertebra above, and the inner border of the scapula below.

[1] *Trans. Clin. Soc. Lond.*, 1905, xxxviii, p. 200.

# Electro-Therapeutical Section.

February 17, 1911.

Dr. H. LEWIS JONES, President of the Section, in the Chair.

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## A Universal Safety and Protective Tube Stand for all kinds of Fluoroscopy and Radioscopy.[1]

By Dr. SCHMIDT (Berlin).

THE demonstration was followed by the exhibition of pictures by means of the epidiascope, representing patients being radiographed in various positions.

## Bauer's Qualimeter: An Instrument for Determining the Hardness of an X-ray Tube by measuring the Potential through the Tube.

By W. DEANE BUTCHER.

THE instrument is practically a static electrometer attached to the cathode of the focus tube. It consists of two fixed metallic plates between which swings a sort of pendulum, two metallic wings fixed on a common axis. When these are joined up to the cathode the plates and the pendulum are both equally charged and the repulsion between them will be directly proportional to the electrical tension in the circuit. An index attached to the pendulum passes over a scale and so indicates the voltage in the secondary circuit.

[1] Manufactured by Messrs. Siemens Bros.

The chief advantages of this instrument are that it is independent of the humidity of the atmosphere, and that it shows when the tube is getting softer as well as when it is getting harder, whereas the parallel spark-gap, the only other continuous method of measuring the hardness, only indicates the latter.

DISCUSSION.

Dr. HUMPHRIS asked what relation the readings of the instrument bore to the voltage of the current which was passing through.

Dr. IRONSIDE BRUCE said he had been using the instrument for a couple of months, and found it very useful indeed. It was also interesting to watch, but he found it occupied a long time to swing into position, which was a consideration when employing a short exposure. Another point was that the hardness of the valve tube might have some effect, and he also thought the graduation was not fine enough; one degree on the scale made a great deal of difference in the penetration of the tube, judging by the radiograms secured. His own machine received some damage in transit, and it was difficult to start. Perhaps the difficulty in swinging into position was greater than usual on this account.

Mr. GILBERT SCOTT said he had used one of the instruments at the London Hospital for three months and had found it extremely useful. But he agreed with Dr. Ironside Bruce that it took a long time to swing up to the point. One must be careful not to point at the needle while it was running. On one occasion when this was done the spark perforated the mica on the front. The great point in its favour was that it was not necessary to expose oneself to the rays while judging of the hardness of the tube. When one got accustomed to its readings, it was quite as, if not more, accurate than the radiometer at present in use.

## Case of Colles's Fracture.

By HERBERT P. TAYLER, M.B.

DR. TAYLER (Bradford-on-Avon) showed slides of Colles's fracture, in which a scale of bone had been chipped off the shaft of the radius and displaced outwards. He first saw the man six weeks after a sideslip from his bicycle. The second slide of the same wrist, taken two years later, showed the complete absorption of the projecting bone. The wrist is now perfectly useful.

## Unusual Form of Contraction of the Fingers.

By H. Lewis Jones, M.D.

The President showed a lantern slide of a peculiar affection of the hands, which he believed to be due to a special morbid condition, and one deserving the attention of the Section. It was a condition occurring in children in their "teens" in which the little finger or the little and ring fingers became contracted. Both hands were affected. The skiagram showed an abnormality of ossification—namely, a premature union of the epiphyses to the shafts of the phalanges of the affected fingers. If members had met with similar cases he hoped they would bring them forward and exhibit skiagrams. He had himself seen three instances of the condition.

### DISCUSSION.

Dr. Ironside Bruce said he was much interested in the case, as he knew of a patient in Great Ormond Street Children's Hospital who had a number of joints affected in the same way, and he would be glad to show pictures of this case at a future meeting.

Dr. A. E. Barclay remarked that he knew of a case of a similar nature, which seemed to be hereditary, as several generations had shown the same condition. In this case also it was symmetrical.

## Demonstration of Lantern Slides of Three Cases.

By Archibald D. Reid.

### Case I.

In this case a concretion in the appendix, extending its whole length, was discovered in an examination for possible renal calculus on the right side. The patient had previously passed a calculus from the right side, and the symptoms at first resembled those that would be found in a case of renal colic.

The diagnosis was verified by operation. The patient some days before the skiagrams were taken had been given a bismuth meal, which

accounted for the clearness of the shadow of the concretion, some of the bismuth having found its way into the appendix, which was kept patent by the concretion.

### Case II.—A Case for Diagnosis.

Skiagrams of a tumour in the right side of a patient who had symptoms referable to the gall-bladder. The skiagrams showed five circular shadows, four grouped together at the lower end of the tumour in the iliac fossa, and the fifth at some distance high up in the right hypochondrium. These shadows all had the same characteristics—namely, a central opaque nucleus, a transparent area round this, and a calcified envelope. The patient refused operation, so that an absolute diagnosis could not be made, but the probable diagnosis is that these shadows are made by calcified gall-stones.

### Case III.

A case of calculi in the bladder showing the possibility of failing to demonstrate stones of relatively great transparency by over-exposure. Three slides were shown; in the first all five stones were clearly seen, in the second only two were visible, and in the third none could be detected.

## DISCUSSION.

Dr. Allpress Simmons, commenting on Mr. Reid's first case—that of probable gall-stones—said he had a case very similar to it two or three months ago which tended to confirm Mr. Reid's conjecture that they were gall-stones, the only difference in his case being that there were no central concretions. It was a case of enormous tumour in the right side of the abdomen. The surgeon who sent the case to the X-ray department said it was either pyonephrosis or hydronephrosis, and he wanted a report as to whether there were calculi. He took two skiagrams, one from the front and one from behind; and both showed low down in the right iliac region a number of circular shadows, but transparent centrally. The balance of evidence seemed to be in favour of pyonephrosis with calculi, possibly uric acid calculi with a dense periphery. Operation was done, but the kidney on that side was found normal, while the surgeon could feel from behind an enormous gall-bladder which contained gall-stones. The patient recovered rapidly from the operation, and was sent to a convalescent home with the object of returning to have the gall-bladder attended to. But she had not returned, and so an absolute verification could not be established.

Dr. A. E. BARCLAY, referring to Mr. Reid's second case, said that he and Dr. Bythell had skiagraphed a case some time ago in which they found no sign of stone in the bladder. The patient had very marked symptoms, but although two or three plates of the bladder were taken, nothing was found. The patient was also radiographed elsewhere with a negative diagnosis. An operation revealed two stones somewhat similar to Mr. Reid's, and an analysis showed them to be pure uric acid. On comparing all the plates taken, in the knowledge of the operative findings, there was only one plate in which there was the faintest shadow cast by the stones.

Mr. GILBERT SCOTT said the bladder case demonstrated how important it was that the central ray should pass, as near as possible, straight down the pelvic cavity in taking bladder skiagrams, as it was only by this means that the stones in this case could be demonstrated.

Dr. IRONSIDE BRUCE said he had had a similar experience with regard to the diagnosis of vesical calculus. He had arranged to secure radiograms to demonstrate the crushing of a stone in situ. The lithotrite could be seen plainly, but no stone appeared between its jaws, notwithstanding the stone was successfully crushed. In Mr. Reid's case he thought the stones would be found to have some phosphate in their composition, for should they have been composed of pure uric acid they would not have projected any shadow at all.

## Demonstration of Skiagrams.

By S. GILBERT SCOTT.

MR. GILBERT SCOTT showed the following skiagrams:—

(1) Large kidney stone entirely filling the pelvis and calices.

(2) Shadow of ureter seen in its entire length on one side in a young subject. A small stone blocking the lower end of ureter, causing hydronephrosis with dilatation of ureter.

(3) Periosteal sarcoma of the radius.

(4) Opaque bodies (calcium salts) in large numbers in knee-joint and synovial pouches.

(5) Extensive deposit of calcium salts in the soft tissues of the thumb, following a septic condition.

(6) Double cervical rib, complete on right side, causing *no* symptoms. Incomplete on left side, 2 in. long, causing typical symptoms.

(7) Child's skull, showing the cranial bones moulded to the convolutions of the brain (? hydrocephalic).

## Unusual Case of Aneurysm.

By Stanley Melville, M.D.

Dr Stanley Melville exhibited the plate of a chest showing a somewhat unusual shadow which was revealed during the examination of a man, aged 57, in whom thoracic aneurysm was suspected. Dr. Kenneth Lund, under whose care the patient was, gave the following history: Primary syphilis thirty years previously, and subsequently definitely tabetic symptoms, with Argyll-Robertson pupils and gastric crises. The only history obtainable with special reference to the chest was the occurrence of slight pain in the upper part of the chest, the pain being occasionally referred down the arms. Careful and repeated examination failed to reveal any other clinical evidence of thoracic aneurysm. The screen examination in the antero-posterior position showed displacement to the left of the heart and great vessels, and a dense opacity with a hard *square* edge continuous with and obscuring the aortic shadow. In the antero-lateral position the aortic shadow appeared distinctly broadened and distorted, though not definitely club-shaped. The radiograph showed the same square opacity occupying the middle third of the chest, and extending to the left for a distance of about 4 in. from the median line. The case was regarded as suspicious, but the ultimate diagnosis was made by the alarmingly sudden death of the patient some days later, the autopsy revealing a ruptured aneurysm at the junction of the transverse and descending parts of the aorta. The pathological specimen which was shown demonstrated the appearances seen.

## Demonstration of Skiagrams.

By R. Knox, M.D.

Dr. Knox showed the following prints:—

(1) A case of infantilism—skull, pelvis, and limbs—showing the arrested development of the bones. The patient was 34 years of age, and had the characteristics of a child of 2 years.

(2) A case of extreme dilatation of the œsophagus in a female, aged 30. Three prints were shown: (1) Showing dilatation in the

whole length of the thoracic portion of the œsophagus; (2) showing the condition when the œsophagus was empty; and (3) showing bismuth in lower portion and site of stricture, with bismuth passing into the stomach.

(3) Tuberculosis of the hip-joint, showing the result of treatment.

(4) A skiagram from a patient with suspicious symptoms of tuberculosis, but no definite physical signs. This radiograph was taken with the new single-flash apparatus of Dessauer, and was particularly good as regards sharpness of detail.

## Three Simple Pieces of Apparatus.

By G. B. BATTEN, M.D.

(1) A small soldering spirit-lamp, known as a "tinol," which costs only eighteenpence. This throws out a jet-like flame which is very useful for heating the osmo regulators of X-ray tubes in rooms where no gas is available. It is, of course, necessary to put an insulating handle on to it, but this is very easily done.

(2) A thin glass mirror mounted on celluloid, of the size of 2 in. by 3 in., which costs twopence only. This could be used as a very efficient reflecting stereoscope, especially for X-ray negatives. The negatives are placed on a flat, illuminated piece of glass, preferably ground glass, but a window will do very well. One of the negatives is placed film down, the other film up. If the little mirror is placed between one eye and the nose and inclined slightly, and the negatives so viewed, the stereoscopic effect is very easily got and there is no apparent diminution in the size of the image such as is seen with some other forms of stereoscopes. If the mirror is now shifted to the other side of the nose and viewed with the other eye, the stereoscopic effect is reversed, and this without moving the negatives at all. This device would be of no use for two X-ray photographs taken on the same plate, as of course one could not reverse one of the photographs without breaking the glass.

(3) The third piece of apparatus was a simple device for utilizing carbonic acid snow. It consisted of an ordinary metal funnel, a portion of the sides of which is of two layers of perforated zinc lined with carpet felt. A lid fits easily over the top of the funnel, and it has two

different-sized spouts; one spout is 3 in. long and is conical, being $\frac{3}{8}$ in. at one end and $\frac{3}{4}$ in. at the other. The other is larger and shorter, and 1 in. square at the free end. Into the cover and small end of the funnel were soldered brass junctions, and on the proximal end of each spout were also soldered brass junctions. These screwed into the junction on the funnel; the small one inside, the other outside. A short piece of rubber hose-pipe was wired on to the junction on the lid, and the other end of the hose-pipe was simply pushed on to the nozzle of any $CO_2$ bottle, a cork being inserted into the free end of the spout chosen and the funnel fitted into the cover, and the tap turned on until enough snow was obtained. The funnel was taken off the lid and the snow rammed tight into the spout by means of a brass rod, on one end of which was fastened a heavy lead-filled door handle. The conical pencil so formed in the spout was then pushed out and used as desired. If enough snow was not obtained, it was very easy to put the funnel back into the lid, turn on the tap and get some more; this could not be done with most forms of apparatus. One "tip" he had learned was that if a very thin pencil was required, the best way to get it was to throw a piece of larger pencil into water and wait until it melted to the right size. This funnel apparatus only costs a few shillings to make and was most efficient in use; the pencil could be made in less than two minutes—the conical pencil being most handy for different-sized nævi, &c. This funnel is somewhat similar to a more elaborate apparatus invented by Dr. Hampson.

# Electro-Therapeutical Section.

March 17, 1911.

Dr. H. LEWIS JONES, President of the Section, in the Chair.

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## A New Induction Coil.

By Professor ERNEST WILSON (King's College), and
Mr. W. H. WILSON.

ACCORDING to this new method energy is taken from an alternating or continuous current source of supply, and stored in a magnetic field by an inductance; it is then permitted to surge into a condenser, which forms with the inductance a *low* frequency oscillating circuit. When all the energy is stored in the condenser the latter is mechanically bridged across the primary winding of a spark-coil, with which it forms a *high* frequency oscillating circuit. The energy is then transmitted by the secondary winding of the spark-coil to the work circuit. The method therefore involves the use of an inductance, a condenser, and a spark-coil, to which must be added a motor-driven interrupter, which controls the cycle of events.

To the left of fig. 1 is shown a spark-coil capable of giving a 10-in. discharge between its secondary terminals. In the base of the coil is placed the condenser. The motor-driven interrupter is shown to the right of fig. 1, and is supported on a box about 6 in. cube, in which is housed the inductance or choking coil. It will be noticed that this box is supplied with four terminals, which allow of three distinct voltages being employed. These can be 250, 100, and say 12, which is the voltage of a small portable storage cell battery. The spark-coil with condenser weighs about 12 lb., depending upon whether the secondary winding is of aluminium or copper strip. The inductance with the

interrupter weighs another 20 lb., making about 30 lb. or 32 lb. in all. This is all the apparatus required.

Fig. 2 is a diagram of the connexions, in which 1 is the winding of the inductance or choking coil; 2 and 3 are the primary and the secondary windings respectively of the spark-coil; 4 is the condenser, and 5 is the interrupter. The inductance (1) is supplied with a number of taps, corresponding to the terminals mentioned in connexion with fig. 1, one of which is connected to one pole of the supply source (6). The other pole of the supply is connected to a brush (*a*) bearing on the interrupter, which may now be briefly described. In the form shown it consists of a disk of ebonite which carries a metal segment and a complete metal ring connected to the segment. Three brushes (*a b c*)

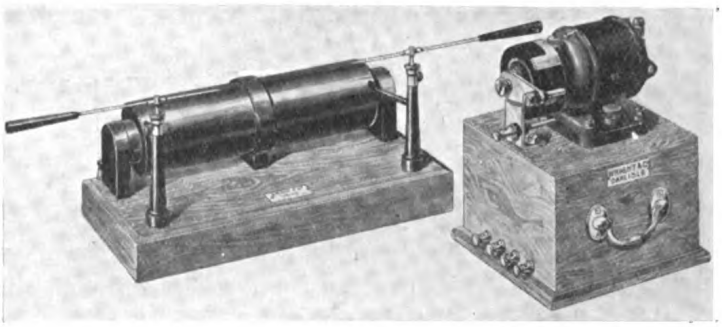

FIG. 1.

Scale—one-ninth natural size.

bear upon the cylinder. Brush *a* makes contact with the segment once in every revolution. Brush *b* is always in contact with the segment, since it bears upon the slip ring attached to the segment. Brush *c* is mounted on an adjustable arm, and makes contact with the segment once in a revolution. The junction of the inductance and condenser is connected to brush *b*. The junction of the inductance and the primary winding of the spark-coil is connected to brush *c*. It may be mentioned that at a speed of 3,600 revolutions per minute the frequency of interruptions is sixty per second. This can be increased by providing more than one cycle of events per revolution of the motor.

We may now consider what happens at the epochs of "make" and "break." At "make" the brushes *a* and *b* are connected by the segment, and the supply source (6) is switched on to the system. A

current rises in the inductance (1), and stores energy in its magnetic field. The condenser (4) is charged to the potential of the supply, the charging current passing through the primary winding of the spark-coil. At "break" the brush *a* severs contact with the segment, and is insulated. The system with energy stored in the inductance, and the condenser is now isolated. The condenser immediately parts with its energy by discharging it into the inductance. The condenser then begins to be charged in the reverse direction by the falling field of the inductance, and in a time depending upon the constants of the circuit the whole of the energy is transferred to the condenser, and it is fully charged. Brush *c* can be so adjusted that at this moment it begins to touch the segment of the contact-maker, and thereby short-circuits the inductance (1). The condenser then discharges with greater rapidity through the primary winding of the spark-coil, and the energy as received at the

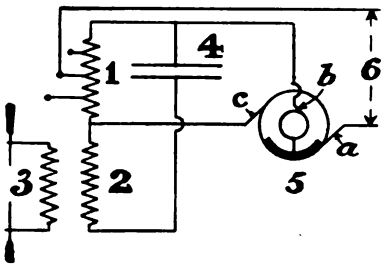


FIG. 2.

terminals of the secondary winding can be in the nature of practically a unidirectional discharge if desired for X-ray work. This is rendered possible by the fact that the core of the spark-coil can be closed, thereby reducing the leakage as between the primary and secondary windings. In other words, the first half wave of E.M.F. in the secondary is enormously greater than the second, and this latter is so small as to cause no appreciable current to pass as an inverse current through the tube. As for the inverse current at "make," this is due to the slowly changing current to the condenser, and is negligibly small even when supply voltages of 250 are employed. On such circuits as 250 volts no series resistances are necessary, and the efficiency is still maintained at a value of from 70 to 80 per cent. In other words, it is only necessary on such voltages as 100, 200, or 250, to have an ordinary twin flexible conductor, such as is used for a reading lamp. This should appeal to the medical practitioner now that lighting systems are generally

available. At the same time the apparatus can be equally well operated by aid of a small portable storage cell battery.

Professor Wilson then showed the coil giving a 10-in. spark, and also exciting an X-ray tube when working off the 240-volt supply. The energy was transmitted from the mains by aid of an ordinary wall plug and flexible twin conductor.

## DISCUSSION.

The PRESIDENT (Dr. H. Lewis Jones) said that the thanks of the Section were due to Professor Ernest Wilson for his demonstration of the apparatus, which served as a fresh proof that in electricity one could accomplish almost anything if one knew how to do it. The type of induction coil they had seen appeared to revolutionize the mode of working a coil completely. The sacrificing of the discharge at "break," and the utilization of that at "make," was new and startling. With Professor Wilson's apparatus one might hope to be able to get larger currents out of coils with less consumption of current. When one thought of all the skill and ingenuity which had been devoted to the improvement of the interrupter of the coil, and how all that seemed about to be brushed aside for a simple motor-driven and almost sparkless commutator, he thought it showed a long step towards the simplification of apparatus which all members of that Section would gladly welcome. He would like to say more about Professor Wilson's apparatus, which had interested him very much indeed, but there was another paper to come before the Section that evening, and he would not delay the proceedings.

Mr. REGINALD MORTON desired to add his personal thanks to Professor Wilson for so kindly coming and giving his demonstration. He had spent a very pleasant hour in Professor Wilson's laboratory not many days ago, and it was then he asked him to demonstrate his apparatus to the Section. He did not know anything in connexion with the development of X-ray apparatus which had given him more interest and greater pleasure. He had a feeling, in spite of the success of the high-tension rectifier, that ultimately the induction coil would prevail as the suitable instrument for exciting an X-ray tube, and he thought it would be an improvement on the existing type of coil. He had not anticipated that the induction coil would be so completely revolutionized as had been done by Professor Wilson. It was easy for anyone to see that if so small an apparatus could do what had been shown, the principle only required to be developed a little further for us to have an instrument by means of which radiography could be made as short as we pleased. After the enormous single-flash apparatus, weighing $\frac{3}{4}$ ton, which he recently saw in Fleet street, it was a pleasure to see this coil. The larger apparatus consumed about 100 amperes, and needed an intensifying screen. A radiograph of the chest was obtained in

a single flash. He knew the magnificent work which was done by the high-tension rectifier, but the shape of the current curve was not the best for that particular purpose.

Dr. PIRIE wished for further information as to the adjustment of the brush. If it had to be finely adjusted to a minute fraction of an inch, was there a spark which would burn it away and change its exact length? It seemed to him it had to short-circuit at a very exact point, and the oscillations of electricity were so quick that unless one caught the maximum point of the oscillation it would be out of order. As there was so little reverse current obtained, was it possible that the oscillations were damped down by the primary winding, and that the discharge from the condenser became a continuous one, like the discharge of a Leyden jar through a wet string? If this were the case the adjustment of the brush need not be very delicate. He would be glad to know how much change it would be necessary to make to adapt the ordinary large 12-in. or 16-in. spark-coils for use with the apparatus for 240 volts.

Professor WILSON, in reply, said he omitted to mention that the tapping points on the inductance could be arranged to suit any voltage, short of the maximum for which the induction was designed. The apparatus he showed had four terminals at the side, and was designed for 100 volts, 50 volts, and a small number of accumulator cells. It was easy to adjust it to various requirements. He thanked Dr. Morton especially for his kind remarks. That gentleman came to King's College and took an interest in the apparatus, and was pleased with its construction. He agreed with Dr. Morton that the induction coil could be made to give all the effects which were wanted. He knew what could be done with rotary converters in connexion with wireless telegraphy. There was at King's College a set for wireless telegraphy, designed according to this new method, and very good results were being obtained from it. Therefore it looked as if they were going back to the older system, somewhat modified. The adjustment of the short-circuiting brush was quite a simple matter, and a very fine adjustment was not vital. The most powerful effect was obtained when short-circuiting with the current in the induction coil at its zero value. By the use of this brush the medical man could adjust the energy which he required for his tube. There were other ways of varying the energy taken from the coil, but the brush provided a very nice adjustment. With regard to the discharge, if time had permitted, they would have been pleased to make one or two additional experiments. One was to detach the short-circuiting brush, in order to show the negligibly small magnitude of the inverse E.M.F. The discharge from the secondary could be practically unidirectional for X-ray work. The damping due to the presence of the core, which could be closed, and the nature of the load on the coil, affected the way in which the energy was delivered to the work circuit. It was easy to adapt the method to ordinary existing coils, but each one must be treated on its own basis, the additional apparatus being the inductance and interrupter.

## The Technique of Skiagraphy.

By Archibald D. Reid.

I have chosen this subject for my paper this evening because I have had occasion to alter my methods of skiagraphy, and because I found that better results were being obtained by others. For many years I, in common with many others, did practically all my skiagraphic work from below the couch; and while this remains, to my mind, the quickest way, especially for hospital practice where the pressure of work is great, and where it is essential, as far as possible, to get results in the shortest time and at the least expense, still it is not possible to get the very best results by it. Perhaps I may be allowed to go for a few minutes into the details of what I may call the old method.

I used to employ a canvas-topped couch, with a substage carrying the tube shield, on which there was an iris diaphragm with a long handle. The substage moved in both directions, so that with the handle of the diaphragm in one hand, the other hand was free to use the cryptoscope, while the longitudinal movement of the substage could be controlled with the foot. By cutting down the diaphragm to its smallest limit, the part to be skiagraphed could be fairly accurately centred, and the plate was then placed on top and the skiagram taken. This gave one the screen examination and the exposed plate in the least possible time, and no method which will do both these things have I found to supplant it as regards time. Almost every part of the body can be examined in this way with ease—excluding the spine, because it is obvious that the respiratory movement must interfere with the clearness of the plate, with the patient lying on his abdomen. Lateral views of the upper cervical spine, head, accessory sinuses, and teeth were not very easily obtained by this method. Renal work was done with the patient lying on the face, over an air-cushion, and the plate strapped on or held in a rigid plate-holder attached to the couch.

With the improvement in the X-ray tubes, and the apparatus for exciting them, much better results are being obtained and expected. We have recently had discussions on the apparatus for exciting the tube, and in this paper I propose only to discuss the actual technique of taking the skiagrams.

When I decided to change to the overhead method, I looked at many different forms of tube-holders, but could not find one which possessed

all the characteristics which I desired. I think it is established that the same stand will not serve for skiagraphy and treatment, and as a rule actual skiagraphic work demands a different form of apparatus to that employed for screening the chest and abdomen, as in examinations with bismuth. I should like here to mention what may be considered the essentials of a good tube-stand :—

(1) Absolute rigidity. This is where all the wheeled type fail. It is not possible to get adequate compression unless the stand can be made quite immobile.

(2) One tube shield to work from above, laterally and from below.

(3) Stereoscopic movement inside and independent of shield.

(4) Ease and rapidity of change from one position to another.

(5) Compression movement that can be gradually applied.

(6) Diaphragm iris or leaf, which can be used from position of examiner.

(7) Easy movement in longitudinal or vertical direction. (This can be done either by moving the patient or the tube.)

(8) A rapid method of accurately centring and changing tubes.

(9) An adequate plate-holder, taking different-sized plates, if possible self-centring, though not part of the tube-stand, is a necessary adjunct.

Taking all these points, I found that the best method I could think of was to work with the idea of the *fixed tube* and the *movable patient*, and the apparatus I wish to show to-night is constructed on this principle. It is intended to take the place of the two outfits I mentioned as being necessary for providing all the necessary positions in skiagraphy, and also to enable one to do all chest work.

The apparatus consists of the tube-stand, couch, and chair. I have them here, but as I was unable to have the stand fixed up as it should be, I have some slides to show some of the positions in which it can be used.

The stand consists of two vertical rods (which are fixed 3 ft. 6 in. apart and screwed by plates in the floor), 7 ft. high, joined at the top by a crossbar, from the centre of which two rods are carried, one on each side, at an angle of 45°, and fixed to the wall. There is another rod the same length, fitted on one side with a sufficient interval to allow a block to slide up and down, into which is inserted the plate-holder, which I will describe later. Between the two main rods there is a horizontal rod which runs on grooved wheels up and down, and in the centre of this the shield is attached by a clamp, which allows rotation through a complete circle. This rod is suspended on pulley-wheels and

counterweighted, and there is a clamp to fix it in any position. The shield-holder looks rather complicated, but is simple in its working. It is in five planes: (1) Clamp and base; (2) raising layer to allow for rotation through complete circle in horizontal axis; (3) gearing plane which actuates; (4) shield-holder proper, which carries screw for chin rest; (5) platform containing rack and pinion stereoscopic adjustment and screw, to which a light wooden tube-holder is attached, and spreader for connecting up to tube and coil. In front of the tube-holder is a leaf diaphragm, which acts on the roller-blind principle. Above this, on the shield, is a movable rod, to which extra plate-holder for upright position is attached when necessary. The shield is made of wood, and lined with the thickest and most impervious prepared rubber I could obtain. At the sides the shield is cut out to allow the passage of the tube in the stereoscopic shift. The compressors fit in the front of the tube by a bayonet joint, and are of different lengths, sizes, and shapes. They are made of wood lined with impervious rubber. The tube-holders, which are made of thin wood, consist of a base, with a slot for screwing on to platform, movable uprights at each end, another piece to the end of which the tube is attached by elastic bands. Each tube in use has one of these. There is a centring device which fits the bayonet catch of the compressor, and which consists of a flat plate with an extensible tube, containing a piece of screen and a small piece of opaque material in the centre of the base, so that an absolutely true position of the tube can be found. Once this is done the tube can be removed, and another centred in the same way can be put in its place in a very few seconds.

The plate-holder, though not an integral part of the tube-stand proper, consists of a rod which pivots into the block I referred to previously, on to the end of which is clamped a changing-box with a celluloid top and a drawer into which slides a set of diaphragms to take any-sized plates from 10 by 12 to half-plate. On the rod there is a metal stop near the block, which impinges on the main rod in such a way that it always brings the centre of the changing-box exactly under the centre tube, when the tube above it is pointing vertically downwards. The arm is swung out, the plate inserted, and then the arm is swung back underneath the couch, and then raised so that the box is in contact with the lower surface of the wooden top of the couch and then clamped in position. If it is desired to do stereoscopic work, it is a matter of seconds to repeat the process and change the plates. The changing-box moves round through 90°, so that the skiagram can be taken either way of the plate. To allow for obliquity in the direction

of the tube axis, as in taking the kidney, there is a sliding movement also, which allows the box to be moved 3 in. further in the direction required. If it is required to work from below, the plate-holder is reversed and the pin inserted from below in a hole the other side of the

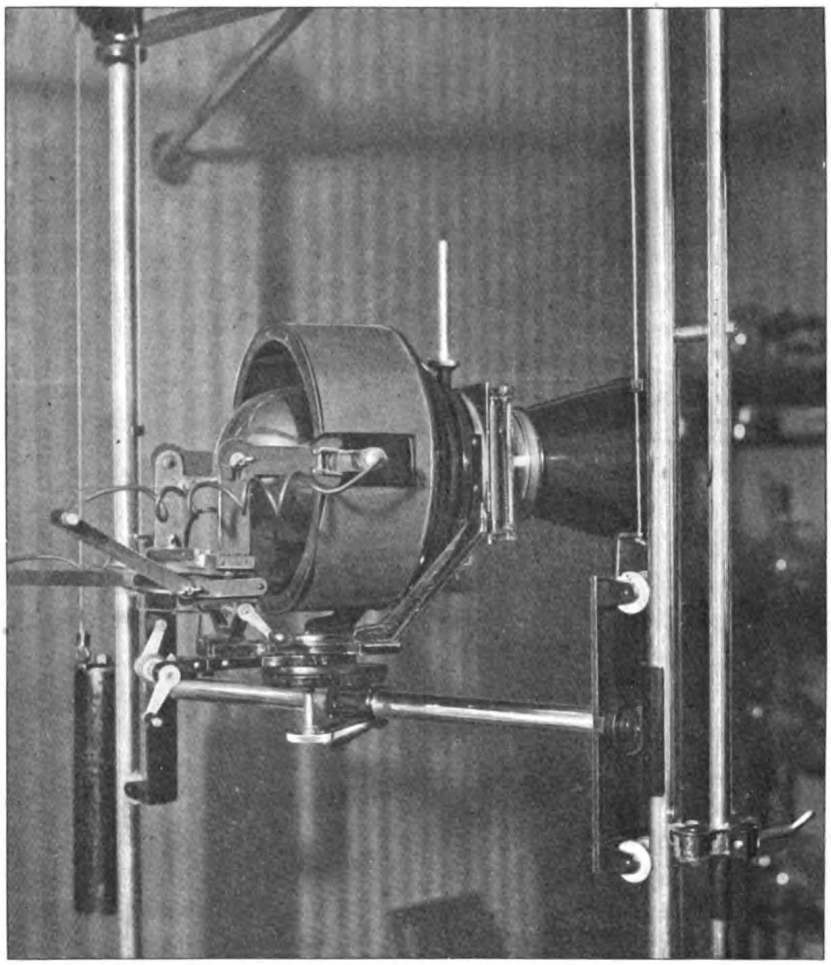

FIG. 1.

Details of tube-holder and shield.

running block, and held in position by screwing a nut on the top of the pin. It still remains centred as before, the stop now acting on the other side of the main rod. Another method of using this plate-holder is to fix four small legs of equal length in sockets on its under surface and

allow it to drop on to a small table. This is extremely useful and convenient for hands, wrists and elbows, especially the semiflexed elbows, which are often difficult to examine in the antero-posterior direction. This obviates the difficulty which often occurs in painful cases, where it is difficult to get the position required when the patient is lying down. Accessory parts have been added for special work. The plate-holder from the pillar above the shield consists of a rod which clamps on to this pillar. This is graduated in inches and millimetres, and on it slides a joint from which is jointed another rod, from the end of which there is suspended a third rod which has three different attachments: (1) A plain clamp; (2) a plate-holder for localizing, especially for foreign bodies in the eye; (3) a plate-holder for stereoscopic skiagrams on one plate. The edge of the block running on this arm nearest the shield reads off the actual distance of the plate from the anode of the tube. The chin-rest is a three-jointed arm, with the terminal joint carrying an upright rod, on which are two sliding rests, one to support the chin and the other to insert between the teeth.

The couch is of the simplest description. The top is made of one piece of three-ply wood $\frac{3}{16}$ in. in thickness, which is quite transparent to the rays; the legs have rounded dome castors, so that it moves easily even with a heavy patient on it, but it stays in position and does not slide; there is a flap at one end which can be raised if the patient is wanted to sit upright with the legs extended.

*The chair* for screening the chest is arranged so that lateral movement is provided on the rails on which it runs. Horizontal movement is obtained by sliding the chair laterally on its whole base on rollers; movement vertically is provided by a gear movement; the back is at right angles and removable—it is made of three-ply wood. The chair revolves completely and can be firmly clamped in any position. A rod at the side attached to the central pillar of the chair carries a screen-holder, which moves up and down and which can be clamped in any position, and also a plate-holder. While this is in use an extension is attached to the diaphragm, which is added on to the arm used for the chin-rest, or to an arm rising from the wheel for giving the vertical movement, thus giving the examiner the horizontal and vertical movement of the diaphragm within easy reach.

I do not propose to deal with the technique of the whole of the body here. Most of it is obvious: Spine, shoulder, hip, knee, ankle, foot, kidney, ureter, bladder, are done from above with the patient lying down and the tube above; head, upper cervical vertebræ, sinuses,

teeth—with patient sitting. Thorax—patient on special chair. Bismuth meal cases—patient standing in front of largest diaphragm or lying with the tube below. Hand, wrist, forearm, elbow—patient sitting with plate-holder on table.

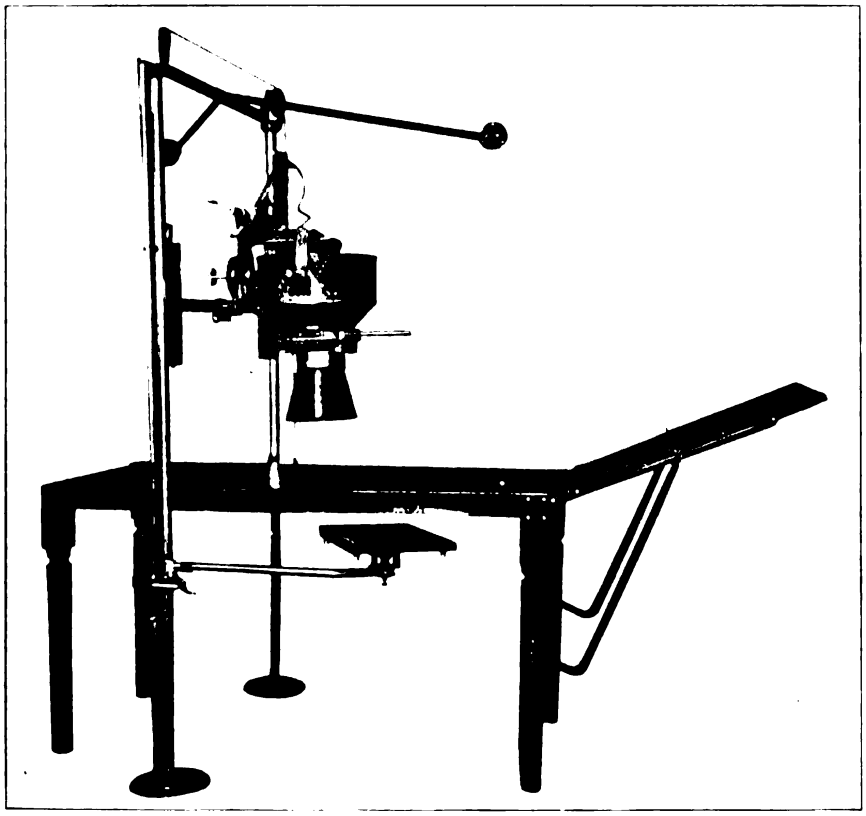

FIG. 2.

View of apparatus fixed in position, showing self-centring plate-holder.

There are certain parts of the body, however, which have presented difficulties, and to which I should like to refer briefly and the method I have found useful. Taking them in detail:—

Head and neck: Frontal sinus, ethmoidal and sphenoidal cells, antrum of Highmore; teeth, atlas and axis, antero-posterior view; lower cervical vertebræ (lateral view).

Abdomen: Kidney, ureter and bladder; bismuth meal skiagrams.

Limbs: Flexed joints.

Foreign bodies: In eye, œsophagus, trachea, lungs, and elsewhere.

### (I) Head and Neck.

*Frontal sinus*, taken with patient sitting in front of compressor and plate dropped in holder in front of head; lateral view taken same way, chin-rest used. Sphenoidal and ethmoidal—lateral views.

*Antrum of Highmore and Mastoid Process.*—Plate in front, head tilted forward.

*Atlas and Axis*, antero-posterior.—Cork placed between teeth to open jaws as wide as possible. Patient sitting facing compressor with chin resting inside compressor. Plate held behind back of head.

*Cervical Vertebræ.*—Lateral compressor as low as possible resting on shoulder. Plate resting on opposite shoulder, about half-way between neck and shoulder.

*Teeth.*—I have completely discarded the method of using pieces of film placed inside the mouth, and work entirely with the apparatus employed for the rest of the head work. The patient is placed in front of compressor, sitting sideways, and the head is rotated away from the compressor so as to bring the ramus of the jaw which is not required into the central axis of the rays. This jaw is then practically obliterated and a clear picture of the lateral part of the jaw required is obtained, quite clear of surrounding structures. The screen must be used to see that the correct position is obtained, and this has to be repeated for both sides. I am speaking now of an examination of teeth—all the teeth in upper and lower jaws, as required in cases of pyorrhœa alveolaris. The lateral and central incisors can be seen fairly well in a view taken from the back as for the antrum of Highmore, but if special detail is required two views must be taken obliquely, centring between the ascending ramus of the jaw and the spine. It is always necessary, I think, to get good results, to take stereoscopic views in these positions, and it is advisable in the lateral ones. To keep the patient in position an extra fitting is placed on the rod above the chin-rest, consisting of a strong joint to which is attached a piece of fibre which can be inserted between the teeth, and this with the chin-rest is sufficient to keep the patient absolutely still.

### (II) Abdomen.

With regard to *kidney, ureter and bladder*, a very few words will suffice, this subject being one so frequently discussed here. I use between the compressor and the patient a ball of cotton-wool larger in

diameter than the compressor in use, or a ball of loofah sewn up in calico. On the first examination I use a 10 by 8 for each kidney, and a 12 by 10 for the lower ureter and bladder. The range of movement of the tube-holder makes it simple to obtain views of the bladder in the axis of the outlet of the pelvis.

For *bismuth cases*, the patient is examined standing, the tube being centred by means of the leaf diaphragm in the shield. The skiagrams are taken by strapping the plate to the front of the abdomen by bands from the pillars of the apparatus.

### (III) Flexed Joints.

It is often very difficult to get one aspect of a flexed joint. *The hip* if so deformed can be done in the usual manner with the compressor above. *The knee* can be done with the patient lying on his face on the couch and the compressor brought down into the popliteal space. *The elbow* (antero-posterior) is examined using the plate-holder on a table as described above.

### (IV) Foreign Bodies.

*Foreign bodies in œsophagus or trachea or lung* can be looked for on the screen with patient sitting in chair. The whole area can be covered with as small an aperture to the diaphragm as desired, skiagrams being taken according to the locality required.

With regard to *foreign bodies in the globe of the eye*, extra precautions must be taken. The special plate-holder for this is made with cross wires, which give the position on the plate of the globe of the eye. This holder is made for half plates, and through the centre of the spring clip which keeps the plate in position is a small circular hole, which enables one to arrange this in the central axis of the ray. The distance of the plate from the anode is read off on the scale and a known body is placed over the lid or a piece of wire is twisted round the scale arm and the free end is brought into a known relation with some part of the front of the cornea. The head is firmly fixed by means of the chin- and tooth-rest. The plates can be rapidly changed and the stereoscopic pair of plates taken, and all the data required for localizing are then in possession of the examiner.

I have no doubt that this apparatus may seem to be unnecessarily complicated, and to possess a very large number of spare parts, but in

working it is exceedingly easy to change from one position to another, and I find that I can do work single-handed much more easily than I could even with the old method.

The third attachment to the vertical arm of the plate-holder from the pillar above the shield consists of a frame 15 in. long by 8 in. broad, the point of which is covered with celluloid. A 5-in. space at the end of each long axis is covered with sheet lead, and behind this is a sliding frame which holds a 10 by 8 plate longways. By sliding the frame to the right and then to the left, half the plate can be exposed at a time, and a stereoscopic pair can thus be obtained on one plate. In the *New York Medical Journal* of January 14[1] Dr. M. Girsdansky described a simple method of viewing skiagrams stereoscopically. A résumé of this article appears in the *Lancet* of February 11.[2] Briefly, the method of viewing is to illuminate the plate from behind, and look at it by interposing a piece of cardboard with an aperture in the centre about the size of one of the pictures, and hold it at such a distance from the plate that the right picture is only seen by the left eye, and vice versa. If both eyes are focused on the aperture, the skiagram appears at the window as an image in three dimensions. I have only recently had this made for upright work; the method is, of course, not new, but has been used by many others.

Dr. Pirie's stereoscope would answer admirably for viewing these pictures; or an arrangement such as this—two pieces of cardboard cut into the shape of the letter L, which can be held in the hands and allowed to slide over one another in such a way that the required aperture is left in the middle. These skiagrams can be made into lantern slides and the audience can be given the pieces of cardboard, and so a cheap and simple method of showing stereoscopic pictures on the screen to an audience is obtained.

In conclusion, I may say that I have been working with this apparatus for six months, and I have found it satisfactory. I have been able to embody in it most of the requirements which I hoped to get, and I shall be very glad to receive any comments or suggestions for alteration or improvement. I am afraid I shall not be able to demonstrate all the movements owing to the want of fixation here, but I think I can show most of them.

[1] *New York Med. Journ.*, 1911, xciii, p. 64.
[2] *Lancet*, 1911, i, p. 391.

# Electro-Therapeutical Section.

April 21, 1911.

Dr. H. Lewis Jones, President of the Section, in the Chair.

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## Osmotic Growths.

By W. Deane Butcher.

I wish to bring before your notice to-night a collection of osmotic growths, productions which we owe to the genius of Professor Leduc, of Nantes. They are forms which closely simulate living organisms, fungi, corals, sea-weeds, &c., but are produced entirely by the forces of osmotic pressure and diffusion in inorganic mineral solution.

Let me briefly explain why I have wished to demonstrate this new form of mineral growth to a medical society such as this, rather than to a purely biological or physical society. I have often thought that the arms of the Electro-Therapeutical Section should be a device such as this: "a Cell, displayed, proper," with the motto "Omne Vivum e Cellula"—a voltaic cell be it understood—for every living cell is a producer as well as a distributor of electricity (*see* fig. 1).

The electromotive force is a product of the protoplasm of the cell. But the wall or envelope of the cell is not an electrical product, nor are the cells built up into a living organism by electromotive forces. The framework, the skeleton, the rough scaffolding of a living creature, is constructed by other means, the energy as well as the material for its erection is supplied from the mineral world by the purely physical forces of diffusion and osmosis.

Thus in every living organism there are apparently two distinct processes going on side by side, one purely constructive of osmosis and diffusion, and another directional which is chiefly of electrical origin. The brute forces of construction are furnished by the molecular force

of osmosis, while the higher inherited function of the protoplasm is to furnish the necessary stimulus and the directive impulse. These two processes are so inextricably blended that it is impossible to study one without the other. Hence the new theory of osmotic growth comes well within the purview of our Section.

The collection of osmotic growths which I now show you were grown here this afternoon (*see* fig. 2). They are purely mineral inorganic productions, made by osmotic pressure of mineral substances in solution, without the intervention of germ or seed, or the stimulation of organic matter.

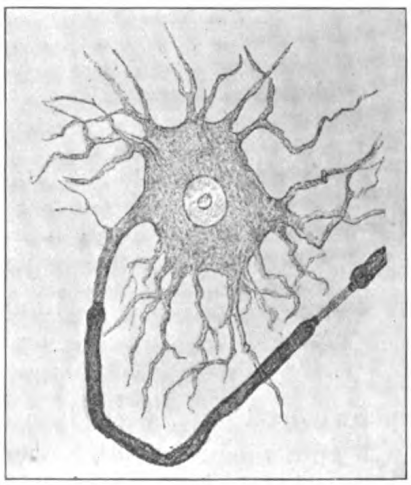
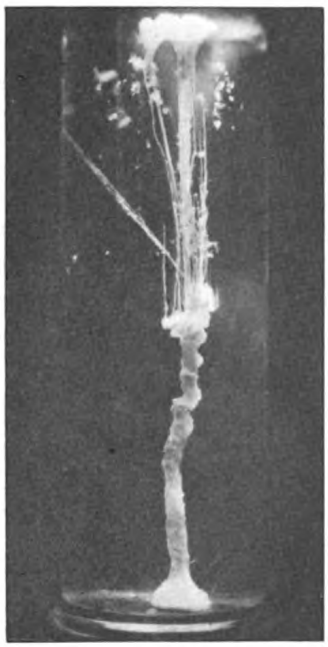


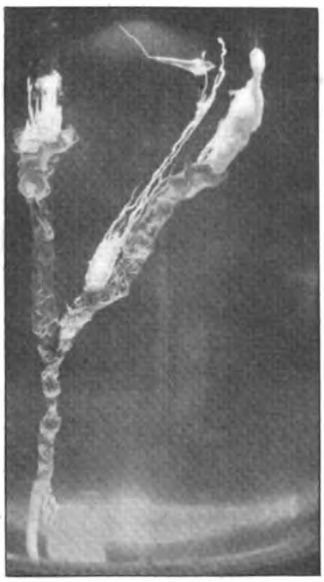
Fig. 1.

Professor Leduc's book on "The Mechanism of Life," which has recently been published in England, contains full instructions for growing these fascinating and ever varying forms, and any one who chooses may easily grow them for himself. I may easily grow one here; I will sow the mineral nucleus or seed, and during the course of the evening you may see the growth. This glass jar contains a concentrated solution of sodium silicate, or waterglass. Into this mother liquor, as we may call it, I will drop a seed, a fragment of fused calcium chloride. The seed will swell, will put forth a plumule, will bud and branch before your very eyes. With a little patience we may watch the stem growing by intermittent jerks, and branching where the growing shoot reaches a point where there is some change in the density of the solution. During the course of the evening it will attain a

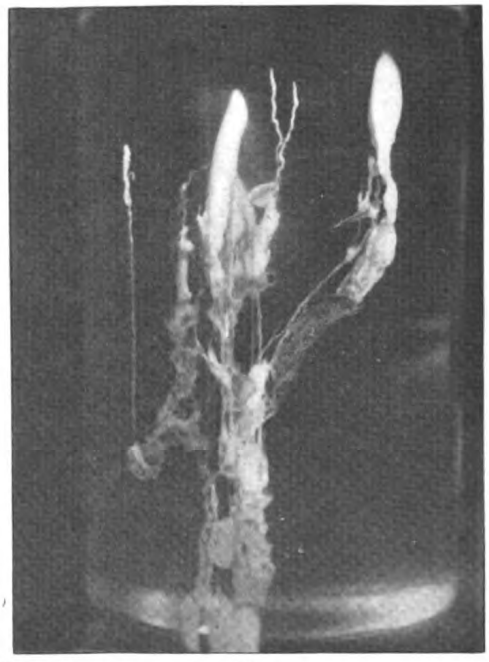


*A*

*B*



*C*



*D*

FIG. 2.

*A* is an osmotic growth from a seed of calcium chloride grown in a mother liquor of sodium silicate containing three superimposed solutions of decreasing density. Note the sudden change of form at the points where there is a change of concentration in the liquid. *B* is from a similar seed in a more dilute solution. *C* and *D* are both photographs of the same growth ; *C* an hour after the seed was sown and *D* twelve hours later. In this case the mother liquor was a mixed solution of silicates, phosphates and sulphates, with a graduated difference in density.

height of several inches. A vast number of these osmotic productions have been grown, simulating the form of fungi, of shells, of sea-weeds and corals, and rushes and grass, and even the texture and colours of living organisms have been reproduced.

It was inevitable that the discovery of these purely organic growths should open again the vexed question of spontaneous generation and the origin of life. It was thought that these might represent the first and oldest order of vital architecture. Happily this question, a purely academic one, need not trouble us as a medical society. The very term "spontaneous generation" is surely a misnomer. Since nothing else in the Universe is spontaneous, the evolution of life can hardly be spontaneous; though where to draw the line between the living and the non-living is a question which I leave to biologists wiser than myself.

## A Sesamoid Bone Fractured by Direct Violence.

By Reginald Morton, M.D.

The patient of whose foot this radiograph was made was struck by a *portière* rod falling in such a way that the rod came diagonally across the foot, striking the distal end of the first metatarsal bone; at the moment of the accident the foot happened to be on an iron plate. There was much swelling and tenderness, and such signs as could be elicited pointed to the possibility of a fracture of one or other of the metatarsal bones.

On examining the radiograph (fig. 1) the only injury present is a fracture of the inner of the two sesamoid bones under the metatarso-phalangeal articulation. It has been cracked across very much in the same way as we crack a nut, and resembles a transverse fracture of the patella in miniature.

While this sesamoid bone is sometimes developed in two parts, it is seen that this cannot be the case here. The adjacent edges of the two halves, instead of being rounded, are indented, and if two plates are carefully examined in the stereoscope the indentures exactly correspond. It is to be regretted that these edges are not more sharply defined, but they are obscured by the end of the first metatarsal bone, and as the

plates were made with the aid of a portable apparatus in the patient's house, complete fixation was practically impossible to attain.

Fracture of a sesamoid bone, other than the patella, unaccompanied by any other definite injury, must be a very rare event; I have looked in vain for any mention of such a condition.

FIG. 1.

Dr. Morton's case.

## DISCUSSION.

Mr. REID said he would be inclined to disagree from the view of Dr. Morton on the case. There was no doubt that the inner sesamoid was constantly developed in two pieces, and he had seen cases which corresponded very much with that now shown where there had been no injury. He would hesitate to diagnose fracture from the present skiagram. On tracing round the two pieces the outline was symmetrical, whereas if there had been a fracture there would in all probability have been some tilting of one fragment.

Mr. GILBERT SCOTT expressed his agreement with Mr. Reid's remarks: it looked very much like a sesamoid bone developed in two parts. Only a day or two ago he had a case showing a similar condition in a normal foot, in reference to which there was no history of injury. In his own case (fig. 2) the smaller half was towards the point of the toe, whereas in Dr. Morton's case it was towards the base. It was important that the question as to whether

this was a natural condition or not should be settled, because there was the contingent point as to whether the patient should lie up for a week or so and be made uncomfortable. If it were recognized as a natural condition, that inconvenience would be saved. It would be interesting to have the skiagram of the patient's other foot to see if the same condition of affairs was present.

FIG. 2.

Mr. Gilbert Scott's case.

Dr. HOWARD PIRIE also considered that it was not a fracture. Although the rough edge between the portions seemed to suggest fracture, Mr. Gilbert Scott's non-fracture specimen showed that also.

Dr. HARRISON ORTON said he had seen several cases showing the same appearance, quite apart from injury; but he had not time to look up and bring illustrative skiagrams.

The PRESIDENT (Dr. Lewis Jones) agreed that it was difficult to believe that a sesamoid bone could break in half.

Dr. MORTON subsequently wrote that—"While quite admitting the value of the criticisms that had been so kindly made, he was still of the opinion that a fracture existed and was produced at the time of the injury. The exact correspondence of the indentures of the opposing edges and the clinical progress of the case were the main points that induced him to adhere to his original diagnosis. The absence of tilting mentioned by Mr. Reid would be accounted for by the fact that the injury was the result of a direct blow and not the pull of a severe muscular contraction, also because the bone was buried within the tendon and this would prevent tilting. He had come across several instances where the bone was undoubtedly developed in two parts, but in none was there such exact correspondence of the opposing edges; they were mostly rounded and gave no suggestion of fracture."

## Success or Failure in Electro-Therapy: a Consideration of some of the Causes.

By SAMUEL SLOAN, M.D.

THIS is the tenth year since the foundation of the British Electro-Therapeutical Society, the parent of the present Electro-Therapeutical Section of the Royal Society of Medicine, and it seems to me a fitting opportunity to review the progress of electro-therapeutics during that time. Prior to 1902 there were many workers in this field, but there was little, if any, mutual help or encouragement possible. The Society has proved itself a success; its results bear testimony to this. Electro-therapy now has no need to fear the sneers of the profession. At the present day it is more in danger of being made the spoiled child of medicine; for it is admitted even by those who are not working in this department that no speciality has made more advance in recent years or is pursued on more strictly scientific lines.

I shall not attempt to give a résumé of the general progress of electro-therapeutics since the foundation of our Society. This would be a mere compilation of what is to be found in the records of our *Proceedings*. I have decided, therefore, to keep to what is strictly personal and attempt to give briefly a record of the progress I have myself made during these years in so far as I can make it helpful towards securing success in the future. I shall leave out all references to the important branch of radio-therapy, since my experience in this department is not such as to qualify me to treat of it. Of the other branches, however, I have had a long experience, an experience, indeed, of nearly twenty years; and so I may have something to say that may prove helpful to those who may have had less experience.

I have a keen recollection of the reception the first paper I wrote on this subject met with—a look of kindly pity from one friend, a note of commendation for the courage I was showing in defying the prejudices of my professional brethren, from another. I had been proud of my results, but results, it was evidently suspected, must be looked upon as coincidences only. I shall not readily forget, however, the warm tribute to my paper sent to me by my old teacher, Professor Sir William T. Gairdner. He, indeed, had a mind open to new ideas, and nothing was "anathema" to him merely because it was heterodox.

Few things are more interesting than the various ways of looking at electro-therapy by medical men who have no experience of it. The type of man he is may be thus gauged. If he is one who feels that what he does not know is not worth knowing, then he has a supreme contempt for it all. The best type of man, on the other hand, will admit his ignorance quite frankly, and if asked his opinion by a patient will probably suggest that it might be worth trying, at any rate since ordinary measures have failed. Electro-therapy may and indeed has, suffered from the conduct of some of those engaged in its pursuit. The up-to-date man, for instance, with the enthusiasm and great expectations of the novice, is, early in his use of it, likely to be surprised that the mere turning on of switches has apparently brought about no miraculous result, has perhaps even done more harm than good. So his ardour cools and he is prepared soon to heap abuse on the treatment. I heard, indeed, lately of one medical man, who admitted that he had tried it in his desire to be up-to-date, declaring that the whole apparatus was, in his opinion, only fit for "scrap." Even he, however, is more worthy of respect than the man with an eye for business rather than benefit, who thinks he sees money in it. Such an one will run it for all it is worth, knowing not that he is only digging a pit into which he will himself sooner or later fall. There is no royal, no golden, road to success in electro-therapy any more than in other pursuits. The way is straight, rough, anxious, sometimes dark, and only he who is prepared to walk patiently, undaunted by difficulties and determined to make his failures milestones on the road to success, will reap the reward. Why, you may ask me, do I talk of failures? You have had no such experience, perhaps. You are happy, then, in your experience. I do not, however, envy the man who has had no failures. I have had them often; but the time for requiring them seems to be passing away. If I speak, therefore, in this paper of success as if boasting, or of "assurance of faith" as having been already attained, do not forget that I am confessing to many failures and much doubting in the past.

If I had been asked, after one year's experience of high-frequency treatment, what I really thought of it, I should have had to confess that I had some difficulty in answering the question. My work had not been so successful as I had anticipated. I had not even then realized the possibilities of the treatment. By that time I had acquired so much experience of low tension currents that I was perhaps hard to please. Now I have no hesitation in saying that I would be seriously handicapped in the struggle with disease without the whole of my

electric plant at my command. Indeed, in the treatment of chronic diseases or of functional disorders I am almost prepared, if I must make a choice between electrical and drug therapeutics, to chose the former. I have learnt, as I have said, to profit by my mistakes, and I am feeling now such an amount of confidence in the therapeutic effects of electric currents that I start treatment in new cases with an assurance of success which I formerly could not have believed possible.

Wherein, then, is this confidence? This is the subject of my paper. In the first place, let me emphasize the importance of a correct diagnosis in each case. This does not mean merely determining the name of the disease; it means obtaining a complete grasp of the salient points in the patient's condition—why he is ill; what prevents him from getting well; what, if any, cause is still in operation? Indeed, I am realizing more and more that the successful electro-therapeutist must be first of all a skilled physician with a wide experience of men and women in health and in disease, for it is a diagnosis not of the disease but of the patient which is all important.

Let me illustrate what I mean by this kind of diagnosis, compared with what is sometimes looked upon as up-to-date medical examination. A lady once asked me to see one of her maids who was suffering from anæmia. Though this patient must have had a vague idea as to what was meant, she could tell me the proportion of hæmoglobin in her blood, how much it was, how much it had been, and how much it should be. Similar facts she seemed to know regarding the red blood corpuscles. Though there was evidence of some good being derived from the arsenic and iron she was taking, she seemed to me a miserable object in spite of her reputed improvement. I asked her why she was in this condition. She did not know; nor had it ever occurred to her to ask the medical attendant she had been under in her previous situation. I looked at her mouth and found it a veritable cesspool. The arsenic and iron had evidently acted as intestinal antiseptics and so kept under some restraint the damage being done in blood destruction by the oral sepsis. Now, how could electricity, materially or for any length of time, have helped such a patient? And, if it had been ignorantly employed, it would have done only as much or as little good as the drugs. Many failures in electro-therapy, I feel sure, are due to neglect in the diagnosis, not of the disease but of the cause. Take a case of headache for instance. How difficult it is we all know to cure these even electro-therapeutically, largely because the discovery of the cause so often baffles us. Though there are many causes of headaches, these, for all practical purposes,

may be considered as two only—namely, toxic and ocular. Let this be borne in mind and the cure is much simplified. If toxic, is the sepsis oral, tonsillitic, intestinal, uterine, or urinary? No permanent improvement can be effected till this is determined. The periodical attacks of so-called biliousness are usually septic storms only which have been gradually but steadily gathering. Not the headache, therefore, must be treated in these cases, but the sepsis; and, except when the dentist is required, this can usually be to no small extent carried out electrically. If, again, on the removal of the sepsis medicinally or electrically the headache should persist, as is not at all unlikely, whether it be due to cerebral congestion or to peripheral neuritis, we have admirable means in our electric armamentaria to combat it. Oculists inform us that, if the headache is ocular only, the pain will be found absent on waking in the morning, will come on early in the day and steadily increase till evening. Toxic headaches, on the other hand, are worst in the morning, and get better as the day goes on, owing to the elimination of the toxins by exercise and fresh air. Of course these two causes may be combined, and often are, the headache being present in the early morning and remaining all day. Suitable glasses will at once remove the ocular cause and make the management of the case a more simple matter electrically. The same may be said of insomnia; but here we have a less simple origin. The psychic element enters largely into the ætiology of this distressing complaint. Therefore, the greater is the importance of a minute inquiry as to the whole life of the patient. Is the cause idleness, alcohol, emotional excess, or undue nerve-strain? Once remove the cause or causes, however, and, if sound sleep does not follow, we have an assured means for its cure. At least, this is my experience of treatment by faradization of the brain, and even by auto-condensation. I once asked a lady who suffered from insomnia for years, how she would like to have eight hours' sleep at a stretch. She said this was impossible. I said she might expect it; but I was slightly over-sanguine, for the most I succeeded in obtaining for her was seven hours and forty minutes.

Again, another cause of failure in electro-therapeutics, besides the failure to detect the cause, is that the electric treatment is begun before the patient is ready for it. Either he is too weak or his work is too strenuous; or coming for it would involve an amount of fatigue which might not only prevent it from helping but even be capable of doing injury. I should like here to emphasize a fact too often forgotten, that electric treatment, whilst capable of doing much good, is also capable

of doing serious harm. And this might well be expected; for anything which is capable of benefiting in suitable cases and when suitably administered is equally capable of injuring under different conditions. This may almost be taken as an axiom, but I fear that in electro-therapy it is too frequently forgotten.

I have referred to the fact that, even after the removal of all the causes of disease, it by no means follows that all the symptoms will disappear. I had a few months ago an illustration of this. A gentleman called upon me for a certificate that he was no longer fit for his occupation. He was, and had been for many years, an accountant in an insurance office, and was finding it impossible to keep his brain in working order. His idea was that an outdoor occupation such as inspector of agents was all he was now fit for. I said I was not prepared to agree with him without some investigation of his case. I found upon examination that he was suffering from oral sepsis, gastric disturbance and general ill-health, and I advised first the removal of all diseased stumps, then a tonic and a fairly long holiday. He felt so much better on his returning that he resumed his old work with the expectation of being able to continue it, but in a very short time his former condition returned and he was quite unable again to do any brain work. I then began the application of faradization to the brain and promised to make him in a short time perfectly fit for his usual occupation. After a course of this, during which he remained at his ordinary employment, he declared himself quite well and able to manage his work with his former ease. Coming to me afterwards, he said that, having been busy of late with the annual balancing of accounts, and having been working for the two previous weeks daily from 9 a.m. till 10 p.m. he was fearing another break-down. I resumed the treatment for a few days, and so enabled him to tackle successfully the extra work till it was finished.

It is quite a common thing for people to come to me for electric treatment expecting to begin it at once, and no uncommon thing for me to decline to administer it till, in my opinion, they are fit to receive it with profit. A mild aperient, a slight change of diet and of habits as a rule, however, suffice for preliminary treatment. In alcoholic cases especially there is sure to be failure if treatment is undertaken without a period of probation and preparation. Total abstinence should be enjoined, or only small quantities of a light claret or lager beer allowed, with perhaps a mild course of some saline. With these preliminaries a course of electro-therapy may be begun with reasonable expectation of success. Indeed, I remember a very chronic case where

the benefit was most marked under this treatment, the alcoholic habit having been broken off for quite a year. In this case the patient, a woman, had dorso-abdominal faradization for several weeks. I have had a similar case in hand for several years. Her alcohol habits were wrecking the home. For some years past the treatment has been absolutely satisfactory, the patient coming to me once a week or once a fortnight for auto-condensation, and keeping absolutely free from the alcoholic craving. I have no doubt that the knowledge that she is due to see me at regular dates may have some influence; but I am also certain that the treatment keeps the nervous system in better tone, and from her regular attendance, she also apparently is persuaded of this. Her sense of gratitude is very evident. Even in serious organic disease, where cure is impossible, I have known life prolonged and made happier by judicious electric treatment. In such cases, however, it ought to be made known to the patient or his friends that the disease is incurable and that only its symptoms can be relieved and its influence on the patient diminished; otherwise the result may be looked upon by the friends as an absolute failure and unjust blame given to the treatment.

I have spoken of peripheral neuritis when referring to headache, and this is frequently the condition when headache is complained of. There is a tenderness on pressure on one or both temples, and possibly posteriorly also. Here general electric treatment is, I find, of only small avail. It may assist in improving the general health, but local treatment is a most important adjunct. In my experience, the vacuum electrode, rubbed over the tender parts till a distinct redness results and remains as a burning soreness for an hour or two, will frequently relieve and finally remove the painful condition. I generally, when the neuritis is over a well-padded region, such as the back or the shoulder, employ the condenser electrode, and finish off with the electric vibrator. I suspect that one reason for failure in cases of so-called rheumatic neuritis of the trunk is that the spinal root of the nerve supplying the part is untreated; for if careful examination be made of the spine, a tender spot will be felt on the affected side, treatment of which as above will go far towards effecting a cure of the painful part, which the patient never associated with the spine. Indeed, he is usually quite ignorant of the presence of the painful spot in the spine till it is detected by the physician; knowing only that certain movements produce exquisite pain at a distance from the spine. Massage with the condenser electrode will sometimes remove a chronic sciatica, when milder electric measures fail. In very chronic cases, the massage

must be deep and the applications strong. In using the vacuum or the condenser electrode, the wire to which comes from the top of the upper solenoid, I generally attach the movable contact to the sixth, seventh or eighth ring of the lower solenoid, according to the size of the vacuum electrode or rather to the amount of its surface which is in contact with the patient. The strength can also be varied by keeping one or two fingers on the electrode, so as to carry off more or less of the current from the patient.

Referring to what I have said regarding the treatment of tender spots on the spine, I may incidentally mention what excellent results may be obtained by fairly vigorous effluve from the high-frequency solenoid applied over the whole of the spine, strong enough to be just short of sparking and for a period of fifteen minutes, for pains in the lower limbs and for a very troublesome condition, nocturnal fidgets, which sometimes render sleep impossible. So much is failure to be looked for in the present state of our knowledge, in the case of organic affections of the spinal cord, that I am justified here in referring to a case of what under the circumstances may reasonably be regarded as a partial cure. Four years ago I detected spastic paralysis in a patient aged 30. I sent him to a distinguished neurologist under whose care and kindness he had every possible chance of benefit from drugs, rest, and a holiday of several months' duration. With the exception of long-continued strenuous application to a large business with practically no holidays, no cause for the disease could be detected and no actual improvement seemed to result from any form of treatment. Under the advice of an army surgeon who was related to the patient he was given large doses of potassium iodide, and this was continued over a prolonged period. At the end of a year from the first evidence of the disease he was so evidently going from bad to worse that, with the approval of the consultant, I began the treatment of the case electrically. The high-frequency effluve was applied to the whole length of the spine daily for fifteen minutes at a time. Immediately, in his own opinion and that of his friends, improvement began. This treatment lasted for many months with occasional intermissions, and the improvement, though slow, was steady. There had been severely exaggerated knee reflexes and very marked ankle clonus from the beginning of the illness. Under the electric treatment the knee reflexes diminished in severity and the ankle clonus ceased almost absolutely. Owing to the death of one of the partners in the business an undue strain was afterwards thrown upon him, and so after a time his walk became less

steady. This was a year ago. The treatment had been intermitted for a considerable time as it had seemed to become unnecessary. It was at once resumed, and improvement was soon apparent. During the last few months, to save him the trouble of coming for treatment, I instructed his wife to apply each night the faradic current to the whole of the spine by means of a roller electrode. He is now better than he has been for years, being about as well as he was when the spastic gait was first detected. During the past two weeks he has discarded the use of his stick when going downstairs. His wife says he is "wonderfully well," and he now conducts a large business, doing the work formerly done by two of the partners, whilst his general health is excellent. This case I have thought worth recording by way of encouragement to those who may come across a similar one where failure only might be anticipated from any kind of electrical treatment.

Sometimes even apparently hopeless cases of spinal disease may be cured by the ordinary faradic current. Such a case came to me in 1901. There was almost complete paraplegia, which had begun nine years before after a severe labour. The application of the faradic current and the sinusoidal current from between the upper dorsal spines and the feet for five months, at intervals of about once or twice a week, was attended with obvious benefit. This patient returned to me a few weeks ago, complaining of loss of memory of three months' duration, due to an emotional shock. On inquiring as to the condition of her legs she declared that she had "never been off her feet" since the cessation of the treatment ten years ago, and no one could have suspected from her walk that she had ever been paralysed.

The history of auto-condensation since its introduction has been a varied one. At present I feel sure from what I hear and read that it is losing, if it has not already lost, its reputation; and yet no form of treatment is at present giving me more satisfaction. Why is this? My apparatus is no larger than that of others. It is smaller than many, I believe, the highest current obtainable being, under ordinary circumstances, 550 ma. I am not sure that this is a disadvantage, rather the reverse. I frequently now give 200 ma. instead of 500 ma., and I believe with better results than formerly. But it is not to the change of my practice in the matter of quantity of current that I attribute my increasing success, but to the knowledge which I have gained from experience of the necessity of controlling the environment of the patient on the days of administration of the treatment, and upon the care with which I select my cases. It is amazing to find what

magic is sometimes expected from electro-therapeutics by patients such as some I have declined to treat, at least when they first desired it. A case bearing on this point occurred to me a short time ago. A young man came from a distant town to tell me that he had been ill for a long time, but that he had been informed that one specially strong dose of "high frequency" would put him right. I found him suffering from chronic nephritis, and endeavoured to point out to him how hopeless were his expectations from that sort of electrical treatment. He did not return.

A common reason for failure in cases which are otherwise doing well is that patients do not allow sufficient time for repose, or at least cessation from strenuous work, before and after each application. The business of having the applications is hurried through. They come for the treatment fatigued, perhaps, and they arrange for some important duties as soon as they leave—a dressmaker to see, some shopping to do, or a call to be made. This is fatal. An hour or two of quiet rest, not necessarily of idleness, before each application, and the same after it, will make an immense difference in the result; unless when merely local conditions are being treated, and often, even in such circumstances, if the best results are to be obtained. In cases of severe neurasthenia, indeed, I insist upon absolute rest for an hour or two before and after each application, permitting perfect freedom of action during the rest of the day. When the treatment is being given as a tonic or as a sedative, I make it a practice to ascertain the condition of the patient's pulse before the current is turned on. If I find it high, and have reason to suspect that the increased rate is due to the excitement of hurry, I frequently insist upon the patient resting on the couch for five or ten minutes without treatment, when, if the pulse-rate is still high, either no treatment is given or a small dose is administered and for a short period only. At the same time the patient is warned that if this condition of unpreparedness should become habitual, the treatment must cease. Of course it may be inferred that mental quiet is necessary during the time of application, animated conversation being discouraged.

Regarding the question of regulation of dose, I usually begin with a small one of 200 ma. In one or two cases I have started the treatment with a milliamperage of 100 only, especially where the blood-pressure was low and the patient liable to fainting turns. At each after-visit the effect of the previous sitting is ascertained. If exhaustion has followed it a smaller dose is given. If a sense of increased vitality or a comfortable weariedness only is reported the original dose is given

or a slightly increased one. If upon inquiry the patient reports a busy forenoon or an expected active time after leaving less current is administered than was formerly given.

When the treatment is applied daily, therefore, the time devoted to it is considerable, though the actual application is only of fifteen minutes' duration. Where three applications a week are given I permit absolute freedom of action on the alternate days, with reasonable avoidance of fatigue. All this may seem trifling and not worth mentioning; but it must not be forgotten that great results are only obtained by attention to trifles; and I have had such good results from auto-condensation when all else, including a prolonged holiday, has failed, that I am inclined to continue my practice. Let me here say that any holiday which can be obtained will be much more pleasant and more profitable after such treatment than before it.

Before leaving the subject of high frequency I should like to draw attention to the beneficial action of local applications, as distinguished from auto-condensation, in gastro-intestinal trouble. For example, the effluve over the abdomen for five or ten minutes before the application of auto-condensation will aid materially. In cases of eczema I have had demonstrations of this, for when the health has improved, and general irritability has been relieved by auto-condensation, the local condition may remain practically uninfluenced till the vacuum electrode has been applied to the parts in sufficient strength to cause a sense of surface burning, when pruritus will cease, and the previous rough red surface will disappear; but usually I find on the parts treated only. I wonder if any of you have observed how nervous a patient may become after about ten minutes of auto-condensation if placed on the couch shortly after a full meal. The best results, I find, are to be obtained shortly before a meal.

I suspect that treatment is often withheld because the patient is in terror of it. I never allow this to influence me where everything else has failed. The dread disappears, the patient's countenance changes, and a previously hopeless invalid is delighted to find herself well again. This may seem a fable, but I am recording facts.

With high-frequency currents I have absolutely failed in the treatment of diabetes and of confirmed obesity; failed, that is, in influencing the specific condition. At the same time, if obese people or diabetics are otherwise ill, much benefit may be derived from auto-condensation properly applied. In simple glycosuria, on the other hand, the glucose can be made to disappear early in the treatment of the case, especially where

it has been observed to come and go according to the condition of health of the patient. Again, in cases of generalized chronic rheumatic arthritis where there is obvious evidence of profound constitutional disturbance of long standing the results have been unsatisfactory. This is what might be expected. In these cases I have tried both high-frequency and ionic medication. If the case is made worse early in the treatment I am more hopeful; though it is difficult to get the patient to see it in that light. A possible reason for non-success may be that the duration of the treatment should probably be proportioned to the length of the disease; and this may prove too irksome to the patient. On the other hand, even a relatively short course of treatment may in time prove beneficial; but as the patient may in the meantime have been lost sight of it may be difficult to obtain knowledge of the final result. A case illustrating this came under my care some years ago. The lady had suffered for twenty years from progressive rheumatoid arthritis, her hands being practically useless. The report at the end of twelve applications of high frequency, local and general, was, "More freedom of movements of arms, but condition of hands and knees unchanged." Three months later the report sent to me was, "Ever so much better, stronger, less pain in joints, and less stiffness." About a year after she called, but I did not see her. Her object in calling was, she said, to report her gratitude for the great improvement she then felt. Possibly, therefore, the failure in these cases is less real than at first might appear.

I have heard it said more than once that there are some patients with whom electrical treatment in any form disagrees. I am not prepared to accept such a statement without further details. In such cases I would be inclined to say, Why? when a possible explanation might be forthcoming. This reminds me of the case of a medical friend in the country. He had known of my success in cases of insomnia when treated by faradization of the head, and so he had it tried in his own case. The result was such as to make him vow that he would not attempt it a second time. Continuing, however, to suffer, and being so restless from nervous exhaustion that he could not remain at rest in bed, he sent for me in the hope that there might be something in what I had said after all. I took with me an excellent large sliding coil, which I had had from Mr. Dean, of London; and the current was no sooner applied to the head than the restless movements ceased, and he exclaimed, "Oh! how delightfully soothing." Evidently the first application had been from a small

coil, giving, therefore, a coarse current; for it is not simply the quantity of faradic current but its quality which tells in such cases. Two milliamperes can be borne with comfort from such a coil as Dean's, whereas less than 1 ma. from an ordinary coil might irritate instead of soothe.

In cases of severe gastric dilatation, where there is no pyloric obstruction, congenital or acquired, success may be looked for. Several cases treated by me in a similar manner had a successful result. I shall briefly relate one which came under my care in 1904, which had a most successful issue. The lad had been off work for a year, and the stomach had been washed out twice daily for weeks, but this lavage had to be given up on account of pain. Vomiting of sour and frothy material had occurred almost every day. His general condition was such that I decided to try electric treatment for one month only, when, if no real improvement resulted, it would be necessary to perform gastro-enterostomy. I gave him oro-epigastric applications of bipolar treatment from the high-frequency solenoid, with a spark-gap of 1 mm. in series, which caused rhythmic muscular twitchings, extending from neck to epigastrium. In a few weeks there was marked improvement. One year later the report given to me was, "Has been working for some months, can eat anything; is stout, and only knows he has a stomach if he gets cold."

This is the only form of current which has been successful in my hands in gastric dilatation. One drawback to it is that there is some uncertainty as to the regularity and strength of the muscular movements. Possibly the static-induced current might be as efficient. It could be absolutely relied upon at any rate for regularity and force.

I am sorry to have to report numerous failures in cases of melancholia. Where, however, this is slight and has a definite cause in the patient's mind, especially if it is due to worry and brain fatigue, and is accompanied with sleeplessness and general ill-health, and where the asthenia is cerebral more than psychic, success is almost certain. If, on the other hand, the melancholia is irrational, and especially if it is associated with delusions, failure is, in my experience, just as certain. The removal in such cases of the insomnia seems to have little, if any, influence on the melancholia; and this is notably so where the mental affection has resulted from the loss of a dearly loved husband or wife. In one such instance my advice to the widower to take a new partner in life resulted in a complete cure.

In cases of occupation neuritis I find it safer, if the occupation cannot be temporarily suspended, to give a guarded opinion as to the results of electro-therapy. This is only what might be expected, since the cause remains in continued operation.

Here I would warn against encouragement, at the beginning of treatment, of the expectations of nervous optimistic patients, where there may be even justifiable reasons for expecting success. Some necessary patience must be inculcated in these cases, and not too much promised at the start, otherwise possible success may become actual failure through early disappointment.

I have so recently given my experience of electro-therapy as applied to gynæcology, that I shall be brief in my reference to this department. I should like to give a warning, however, regarding intra-uterine ionic, or ordinary pelvic galvanic, treatment in cases of disease of one or both ovaries. If the treatment is employed in such cases, pain on the part of the patient should be considered as an indication either that too large a current is being employed or that the treatment is, in that case, unsuitable. I have had reason to regret applying it under such circumstances. In one case I had reason to suspect that intra-uterine high-frequency treatment was the cause of an acute attack of pelvic cellulitis. Since the mere passing of a uterine sound has been known to have such a result, the electric current may not have been accountable in this case; it is difficult, indeed, to see how it could have been so. I mention the case, however, as a warning.

I have spoken in the early part of my remarks on the importance of correct diagnosis as an aid to success in electro-therapy. Now, I know of no condition more liable to be overlooked, in the case of women suffering from psychic neurasthenia, than unsuspected, often apparently unimportant if detected, irritable conditions of the vulva. In one case a young woman had been under my care with only limited success until I discovered that her mind had for years been unduly concentrated on an irritable condition of the vulva; and it was only when this received attention that real improvement set in. In another the lady had repeatedly complained of distressing pelvic spasms which she felt certain were largely the cause of her neurotic condition; but she omitted to mention this to me in her history of her illness. The lady doctor under whose care she had previously been had told her that the vulva was perfectly normal and that the sensations that she described to her must be imaginary only. On my first examination of this patient I placed my finger on the vaginal orifice, which seemed to me unduly red

compared to the rest of the vulva, and remarked that surely there was some unusual distress there. The patient seemed impressed with the fact that I detected this without my attention having been drawn to it. Under proper electric treatment this redness disappeared and so did the pelvic spasms, the general health becoming greatly improved as a result. In such cases I find the vacuum electrode an almost certain remedy. In the case of a married lady now under my care, long-continued treatment had failed to relieve her of a burning sensation in the vulva. On examination I discovered two minute septic ulcers in the groove at the junction of the hymen with the vulva, too trifling apparently in size to be the cause of much distress. She insisted, however, that this was the situation of the burning. These ulcers disappeared about a week after one application of the galvanic cautery. The burning sensation has only greatly diminished; but, since it has existed for many years, the final disappearance cannot be expected immediately after the removal of the cause, seeing that the general health has been impaired from long years of physical distress and mental anxiety, normal conjugal life having been made impossible owing to the pain resulting. Auto-condensation, combined with an ordinary tonic is, however, proving sufficient to restore her nerve-tone. I was much impressed by a remark this patient made to me at her second visit. "No wonder," she said, "that the real cause of my distress was never detected, for no one before has examined me in the manner you did"—that is, in the dorsal position with a full view of the opened vulva. When talking to a medical friend on one occasion on this matter, he asked me if my patients did not object to such a method of examination. My answer was that I never asked them. Indeed, I believe it would be more offensive to their natural modesty to ask such a question than to make the examination.

The employment of electricity as a sole remedy eliminates all other sources of possible success or possible failure, and makes for education in correct electro-therapy. This is of value in the early practice of the art; but, without doubt, once sufficient experience has been gained, the best results will be obtained by utilizing to the full all the resources of the healing art—electrical, medicinal, dietetic, physical, psychic—and he is the most successful physician who has his quiver full of such weapons, and who, in cases of difficulty, is fertile in resource. I am tempted to refer to-night to some of my experiences in electro-therapy not yet brought before you by me on this occasion or in the past; but I shall not now burden you with these. Besides, I have been trying

to confine myself as far as possible to the subject of my paper—namely, certain causes of success and of failure in electro-therapy; and, though you may think that I have wandered somewhat from my thesis, I have at least attempted to limit myself to it.

## DISCUSSION.

The PRESIDENT (Dr. Lewis Jones) said all were extremely glad to hear Dr. Sloan's paper. He found it difficult to say much on the gynæcological part of the paper, as that department of practice did not come his way. If there had been time, he might have taken the opportunity of raising the whole question of high-frequency treatment. But not only was the hour late, but the opinions of members were not yet crystallized on that subject. For himself, he thought the secret of success in high-frequency treatment was the employment of maximal currents, which did not harmonize with the view of Dr. Sloan. He was not ready at the moment with sufficient facts to support this contention; but he believed that in future currents of an ampere or more would be used in place of smaller currents, for he believed the effects of high-frequency currents to be largely thermal.

Dr. AGNES SAVILL remarked that anything which Dr. Sloan had to say concerning high-frequency electricity was of the greatest interest. She was much interested as to the psychic effect of suggestion in the administration of high-frequency currents, because in many cases when one gave a small dose of auto-condensation one was inclined to believe that the effect was more or less due to "suggestion." But one held that opinion rather less pronouncedly when one saw a strong-looking man, after a small dose of 200 ma. for ten minutes, become irritable and tired and upset, and unable to do his work for the remainder of the day. She had therefore been in the habit of taking a record of the blood-pressure and pulse before and after treatment; also, she had listened to the heart sounds in as many cases as she had time to do so. The result of those observations was very instructive. Even a small dose of high frequency upset those who had low blood-pressure; those with the high blood-pressure could stand very much more high-frequency current, and felt much better when the elevated blood-pressure was reduced nearer the normal. Her opinion was that much would be learnt in the future from studying the alterations of the blood-pressure in association with the frequency of the pulse. Her own work in that matter originated from having read Dr. Sloan's admirable paper which was read some years ago before the Electro-Therapeutical Society.[1] One could not doubt the effects of high-frequency current when one saw certain definite physical effects; for instance, when one saw a patch of eczema on the rectum disappear after very few treatments with the condenser electrode, one could

[1] *Med. Electrol. and Radiol.* (1907), 1908, viii, pp. 39, 69.

not speak of that as due to "suggestion." Much had been done recently by irregular practitioners who worked on the spine. Did high frequency applied to the spine act in the same way? Probably the current contracted the blood-vessels there. She knew that five or ten minutes' application of the condenser electrode down the spine, when she was feeling very tired, made her feel like a different woman for the rest of the day.

Dr. ETTIE SAYER said the great difficulty in applying the different modes of electricity was to have an exact idea of the differences of their physiological action. She, like Dr. Savill, made a practice of taking the blood-pressure before and after treatment, and found that the idiosyncrasies of the patients varied very much. She had several patients now to whom she had given the high-frequency currents for local troubles, each of whom had broken out into a profuse general perspiration almost immediately the current was turned on. She did not know what determined this effect upon the sweat-glands, but it was pretty common with a certain type of neurotic patient, who, as a rule, did well with static electricity, and she would be glad if Dr. Sloan could throw any light on the matter of such sensitiveness to this current that its use could not be tolerated, whereas nothing but benefit was derived from an effluve of the same strength from a static machine.

Dr. HOWARD PIRIE, commenting upon Dr. Sloan's statement that obesity could not be cured by high frequency, said that the method had been used recently in France for reducing weight, several amperes being passed through the body, with the result of raising the body temperature several degrees. By means of the diathermic apparatus that could be done. A person in a fever wasted, and therefore one would think that raising the temperature of the body would result in tissue consumption and loss of weight. He had passed 2,000 ma. through one patient, but she had not so far appeared to get thinner.

Dr. SLOAN, in reply, thanked members for their comments. He did not think the President and he were speaking of the same thing. Auto-condensation was not bipolar and local, but unipolar and general. He could not believe that the effect of high frequency in the form of auto-condensation was purely thermic, when gastro-intestinal sepsis could be removed by it; besides, the rise of temperature of the body was very small. In spite of what had been said he proposed to adhere to the small dose. He found large doses were sometimes very overpowering to people who were ordinarily strong. It might take a patient two days to recover from a large and prolonged dose. He could not say he had noticed undue diaphoresis following the application, but there was a warm glow and a feeling of increased vitality. If carried further, there was a sensation of comfortable fatigue; and beyond that, exhaustion; beyond that still there would be such exhaustion that the patient would probably be discouraged from coming back again. He noted that Dr. Pirie's stout patient had not lost weight, even after a temperature of 104° F. High temperatures could be obtained more agreeably than by auto-condensation; he referred to the Turkish bath. The high-frequency current made obese people stronger, even if it did not reduce their weight.

**No. 10.**—*January 24th* 1911.

# The Royal Society of Medicine

## OFFICIAL BULLETIN

### SPECIAL GENERAL MEETING OF FELLOWS FOR REVISION OF BY-LAWS

At a Special General Meeting of the Fellows of the Royal Society of Medicine, held at the Society's (temporary) House, 15, Cavendish Square, W., on Friday, November 11th, 1910, at 4.45 p.m.

*Present:* Sir Henry Morris (President), in the chair; Dr. Arthur Latham and Mr. Herbert S. Pendlebury (Hon. Secretaries), and Mr. MacAlister (Secretary), and 43 Fellows.

*Alteration of By-laws:* The President, on behalf of the Council, moved from the chair:

> That the rescission of the By-law, Chap. 21, Art. 2, and the insertion of the following in its place, viz:—
>
> "In order to comply with the provisions of the Statute 6 and 7 Vict., Chap. 36, it is enacted and declared: (1) That the Society exists exclusively for scientific purposes; (2) That it is supported wholly or in part by annual voluntary contributions; (3) That the funds of the Society shall at all times be devoted to the purposes for which it is instituted, and no dividend, gift, division, or bonus in money, shall at any time be made unto or between any of the Fellows of the Society, or any of the Members of its Sections."
>
> as ordered by the Council of the Society at a meeting held on Friday, October 14th, 1910, be and are hereby confirmed, and that the said By-laws (as signed by the President) be and are hereby adopted and confirmed.

Carried unanimously.

2,900.26.1.11.

## ANNUAL DINNER, 1910

The Annual Dinner of the Society was held at the Connaught Rooms, Kingsway, London, on Tuesday, November 29th, 1910, the President of the Society, Sir Henry Morris, Bart., F.R.C.S., in the chair. Among the invited guests of the Society were Sir Thomas Barlow, Bart. (President of the Royal College of Physicians), the Right Hon. Lord Blyth, Surgeon-General Branfoot (President, Medical Board, India Office), Mr. H. T. Butlin, F.R.C.S. (President, Royal College of Surgeons), Judge W. N. Carter, Mr. S. Forrest Cowell (Secretary, Royal College of Surgeons), Alderman Sir Thomas Crosby, M.D., Mr. E. R. Debenham, (Mayor of St. Marylebone), the Right Hon. Sir Joseph Dimsdale, Bart., Sir Almeric Fitzroy, K.C.V.O., Professor M. J. M. Hill, F.R.S. (Vice-Chancellor, University of London), the Right Hon. Lord Ilkeston, M.D., Mr. Justice (Sir Montague) Lush, the Right Hon. Lord Justice Fletcher Moulton, F.R.S., Mr. Victor G. Plarr (Librarian, Royal College of Surgeons), Sir James Porter, K.C.B. (Director-General, Medical Department of the Navy), Dr. S. Squire Sprigge (Editor of *The Lancet*), the Right Hon. Sir T. Vezey Strong (the Lord Mayor of London), Mr. Charters J. Symonds, M.S. (President, Medical Society), Mr. W. Whitaker Thompson (Chairman, London County Council), Alderman Sir William Treloar, Bart., Mr. J. Y. W. MacAlister, Secretary of the Society, and Dr. Nachbar, Editor of the Society's *Proceedings*.

### Royal Toasts

The President, in proposing the toast of "The King," took the opportunity of expressing the grateful thanks of the profession not only for the sympathy which the King always exhibited towards medical matters generally, but for the close association of himself with the large corporations and associations of the profession. It had been his (Sir Henry's) exceptional privilege as Vice-President, and afterwards as President, of the Royal College of Surgeons, to witness the acceptance of the Diploma of the Honorary Fellowship of that College, both by the late King and by the present King when they were Prince of Wales. After their accession each of those Monarchs had permitted the continuation of his name upon the Roll of the College. The late King was also an Honorary Fellow of the Royal College of Physicians. The present King, as Prince of Wales, accepted election as an Honorary Fellow of the Royal Medical and Chirurgical Society, and was therefore an Honorary Fellow of the Royal Society of Medicine. His Majesty was also Patron of the Society, as well as Patron of the great Medical School, "Epsom College"; and lately King George had become the Patron of the British Medical Association. He concluded: "I propose to you, my lords, ladies, and gentlemen, the health of the King. God bless him, and grant him health and strength, and grace and wisdom to conquer and triumph over the great difficulties and complications which beset his exalted and august station."

The toast was honoured by the singing of the National Anthem.

The President, in submitting the toast of "The Queen, Queen Alexandra, the Prince of Wales, and other Members of the Royal Family," remarked upon the interest which Queen Alexandra had always taken in medical matters, in

nursing, in the amelioration of distress, while in the relief of suffering her efforts were proverbial. Those of the Queen were no less so, and Her Majesty had probably visited more Metropolitan Hospitals than any lady living. Indeed, it seemed as if an interest and a delight to assist in that kind of work had been an inherent characteristic of the family, in testimony of which also were the efforts of the late Prince Francis of Teck, whose services were being continued by his Serene Highness Prince Alexander of Teck.

The toast was pledged with great heartiness, to the singing of the National Anthem.

THE SOCIETY

The Right Hon. Sir JOSEPH C. DIMSDALE, Bt., K.C.V.O., in proposing the toast of "The Society," said many members of his family in the past had been connected with the noble professions of medicine, surgery, and chemistry. The first Baron Dimsdale, with Dr. Fothergill, were probably the greatest authorities in those days on inoculation for small-pox, the only means then known of combating that dire disease, though it was later superseded by vaccination discovered by Jenner. Another reason, perhaps, for his association with the toast was that he was of Quaker stock, and Quakers had among their community many distinguished physicians, surgeons, and chemists. Precluded by their religious tenets from entering the Army or Navy, and until comparatively recently even the Bench and Bar, their avocations were somewhat constrained and limited. He had the privilege of knowing many great representatives both of Medicine and of Surgery—one, the great Lord Lister, whose name would live as long as humanity, tenderness and sympathy lived in the human heart, and whose antiseptic treatment had, under God's blessing, saved many thousands of lives. Another to whom he would refer was his old and valued friend, Sir Jonathan Hutchinson, whose life as surgeon and in the field of research would probably never be fully gauged or estimated by us, but cherished by generation after generation. It was a great satisfaction that both those great men had been permitted to see some fruition of their lifelong services. But whether at the top of the profession among those who had reached the height of their ambition, or in the more humble sphere of the student or dresser in the hospital, the same feeling animated all, the same devotion to their profession, the same determination to do their duty towards mankind.

Nor must they forget to mention the nurses, those who cheerfully and tenderly assuaged sufferings and watched and smoothed the pillow of those afflicted, and in many instances were the sole consolation to many in their last hours. How enormously did the nurse of the present day assist the physician and surgeon in their work. She gave inestimable help in carrying out what was now a daily and hourly occurrence, but which twenty-five years ago would have been looked upon as absolutely impossible. A very great deal was owing to science, but still more to those surgeons, physicians, and nurses who devoted their brains and intellects to study the finest mechanism in God's world—the human body. Many great men had passed away but had left us imperishable and undying legacies, which enabled those coming after them to keep abreast of the times and to participate in the learning which they had bequeathed. One of the centres of professional learning was the Royal Society of Medicine. The nucleus

of the present Society dated back over one hundred years. In 1805 it commenced in a small way—twelve members accompanied by three friends were deemed a good meeting. The Medico-Chirurgical Society passed through many vicissitudes, surmounted many difficulties, and in 1834 a Charter was granted, which gave considerable impetus to the work. But the crowning moment in its career so far came as recently as 1907, when the old Society was able to amalgamate with seventeen of the leading medical societies to form one homogeneous body, "The Royal Society of Medicine." It was a centre for collection, comparison, criticism and research into the causes, prevention and treatment of disease; while meetings, the reading of papers, lectures and demonstrations were some of the great benefits which it offered to all who sought for learning and who desired to be worthy exponents of the objects of their great professions. Moreover it possessed a library containing 100,000 volumes; the summary of the knowledge of those who, although gone, still spoke to them. This library was open not only to those in London, not only to those in these islands, but to the members of the professions beyond the seas; and he did not think he was going too far in saying that it was available to the whole world. The Society had had its severe times to go through at its commencement, but its progression during the last few years had been phenomenal. In 1890 it possessed only about 800 Fellows; it was now necessary to provide for 3,200 Fellows, and that number would very probably increase rather than decrease. That was a tribute indeed to Mr. MacAlister, for when he was appointed in 1887 there were only about 750 members and an income of £1,800. To-day the income was £10,000 a year. They were all pleased with this growth, but Mr. MacAlister had a right to be the proudest man in that room to-night.

He hoped that the new building now in the course of construction might be completed without debt. The Society was not only a great centre, but an absolutely Imperial and universal Society. He hoped that its efforts for the alleviation of suffering, the cure of disease, and the further knowledge of medicine, surgery, and science might be richly blessed under an all-wise and beneficent Providence. He had the honour to associate the toast with one whom he was proud to regard as his friend, and who was one of the brightest ornaments of the profession, Sir Henry Morris, whom he hoped would have long life and every happiness and prosperity.

The toast was heartily pledged and musically honoured.

The PRESIDENT, in acknowledging the toast, after thanking Sir Joseph Dimsdale for his genial and appreciative and complimentary speech, said he had wished that either Sir Richard Douglas Powell or Sir William Church had been entrusted with the response to the toast. It was during the period of office of Sir R. Douglas Powell as President of the Royal Medical and Chirurgical Society and at his instigation that the third and successful attempt to amalgamate the various medical societies was commenced. It was under the Chairmanship of Sir William Church, who became the first President under the new Constitution, that the Organizing Committee were able to bring that amalgamation to completion. Just before Sir William's presidency terminated there occurred an important event, namely, the giving up of the old house, the entering

into temporary apartments, and the commencement of the building of a new house. Many might say: "Why, at such a period, should the President be changed? On the principle that it was unwise to swop horses when crossing a stream, it was unwise to change the President at such a juncture in the life of the Society." But the Charters said that no one could hold the presidency for longer than two years. The change of President, however, was not as serious as it might seem, because Sir William Church was still on the Council, and was now one of the Treasurers. And although Sir Richard Douglas Powell had, for the present, retired from the Council, he was near at hand, and it was certain he would always be ready to render the Society assistance when requested to do so. There were many Fellows who were not in sufficiently close touch with the Council to know precisely all that was going on, and he could understand some of them asking why the Society had given up its home in Hanover Square, as it had there a good home, and good premises, in an excellent situation. The answer was very simple: the Society had altogether outgrown the accommodation which those premises afforded, and as there unexpectedly came a good offer at a good rent, with other advantageous conditions, the Council of the Society did not feel justified in rejecting it, especially as they had previously heard of a most suitable site which could be obtained under favourable conditions from the Howard de Walden estate at the corner of Wimpole Street and Henrietta Street. Ever since the existence of the Society it had always been on the increase, and periodically on the move. At its formation it consisted of thirty members as the full Society, and a few of the earliest meetings were held on the spot at which they were now dining, in the Freemasons' Tavern, and amongst the names of the founders, Sir Joseph would be pleased to hear, was that of Dimsdale. Then it went to Gray's Inn, then in 1810 it joined housekeeping with the Geological Society, at No. 3, Lincoln's Inn Fields. There were two occasions on which the Society, as a chartered Society, attempted to get, and was led to expect it might get, a house at Government expense; first at Somerset House in 1834, and the second time in the buildings which were being erected at Burlington House in 1866. In 1835 the Society rented rooms in Berners Street, and in 1866, as there was no accommodation to be found for it in Burlington House, it took the whole of the house at 53, Berners Street, and there and then, for the first time in its history, became the possessor of a complete leasehold house of its own. In 1888 the Society numbered 769, and its library had no less than 71,000 volumes. In 1889 a move was made to the larger premises in Hanover Square, and thus fifty-four years after it entered 53, Berners Street, it left that house to go to its recent home. And now after twenty-one years in Hanover Square the Society was building a house of its own which would meet all its requirements for some generations to come.

Another notable change which had taken place in the history of the Society was the admission, this year, of women to the Fellowship of the Society. When the various Societies joined with the Royal Medical and Chirurgical Society, women who were members of the separate Societies were continued as members of the corresponding Sections in the united Society, but they were not admitted to the Fellowship of the entire Society. But in February this year by-laws

were passed which admitted women to the Fellowship of the Society, and they now numbered twenty-three. That was one of the signs of the times, for in 1881, when the International Medical Congress met in London, there were only twenty-five women on the Register of the United Kingdom, and on a protest being raised against the Executive of that Congress because they excluded women from the membership, there were altogether only forty-three regularly qualified medical women, both British and Foreign, who signed that unsuccessful protest. To-day, 1,050 women had passed through the London School of Medicine, and of that number he understood that 800 had taken degrees in the University of London; and a search through the records at the General Medical Council offices, within the last few days, revealed the fact that there were now 855 qualified women doctors on the Medical Register of this country.

One subject in which the Royal Society of Medicine would like to take its part and share, if its income permitted it to do so, is the investigation of tropical diseases. Here, indeed, were tropical kingdoms of darkness and ignorance which were being, and had to be, overcome by white men, which must be conquered by white men, because the natives never had attacked and never would attack them. It had often been said by historians, and ethnologists and geologists, that man's power over Nature varied with the characteristics and structure of the land inhabited by him. In Europe and suchlike countries, where the mountains were moderately low and the rivers moderately small, where the rains were moderate and equally distributed over the various seasons, where the climate was temperate and Nature mild, there man was strong and his development was stimulated. But in countries like India, where the mountains and rivers were colossal, where the climate alternated between torrid drought and torrential rains, there man's power was feeble and indeed seemed dwarfed, and his energies were repressed. He seemed to be held "in bondage under the elements of the world." The native might be ingenious, imaginative, learned, he might build delicately beautiful and wonderful temples and monuments, or massive and imposing pyramids; but still he was under the domination of Nature, and he was disposed, as were also many occidentals, to attribute to climatic changes those epidemics which were now known to be due to micro-organisms, and to attribute to the wrath of an avenging Deity those sicknesses and plagues which were now known to be propagated and perpetuated by exterminable flies and fleas. But it was the white man who, having penetrated into those countries, carried railways through and over mountains, built lofty and stupendous bridges over fearsome chasms and terrifying precipices, and improved the irrigation of the land by numerous and ponderous engineering works. It was also the white man who would have to grapple, and was grappling, with devastating tropical diseases by discovering their causes and by devising means for their suppression and extermination.

There occurred periods or epochs in the career of every prolonged investigation or permanent institution when a survey of the past, of the present, and of the possible future became almost inevitable. Such a period was being passed through by the Royal Society of Medicine at the present time. Sir Henry then proceeded to relate the well-known legend of the Seven Sleepers of Ephesus, which had been translated from the Syriac into Greek and Latin and almost every known

language; it had been narrated in every country from Scandinavia to Japan, from Russia to Africa; it was to be found in the Koran, and had been recorded by Christian and Mahommedan alike. Gibbon attributed the popularity of the legend to its genuine merit as an illustration of the tendency of mankind not to realize the immensity of a revolution which was being wrought by the consecutive changes through which each generation lived. If, however, men awaking after a slumber of a century or more, retained a lively recollection of their old impressions, their surprise and reflections concerning the changes they saw would furnish material for a philosophical romance.

It was not possible for him to give illustrations of the romances, in which, in this way, might figure Dr. Saunders, the first President of the Society, Sir Henry Halford, the great and never-to-be-forgotten Matthew Baillie, Sir Gilbert Blane, Sir Astley Cooper, Babington, Cline, Elliotson (who favoured mesmerism and to whom Thackeray dedicated "Pendennis," and Dickens an early collection of short stories), and Abernethy and others of the famous leaders and early Presidents of the Society; but he was sure that the record of the surprise and reflections of those men, could they but come to life and hear the papers read and listen to the discussions which now took place at the Society's meetings, would furnish an abundance of amazing and amusing material for a successful professional and social romance. But in one respect they would find the present and the future like the past—they would find that the work done at the Royal Society of Medicine was being, and would be, continued with the same purity of motive and the same elevation of intention with which it had been started and carried on by themselves. He had the utmost confidence that the future Fellows of the Royal Society of Medicine would, in this respect, do as those of the past had done and the present were doing. And if he were asked what would be the nature of the work, of the aims and objects of the Fellows and of the Members of the Royal Society of Medicine in the coming time and in the new building, he would not have to go into a watch-tower and wait for a vision before replying, as did the Prophet Habakkuk when he wanted to know what would be the fate of his own people under the tyranny of the covetous and insatiable Chaldeans. He knew that the stone would not cry out of the wall "Reproach," nor would the beam out of the timber reply to it "Shame," because he was sure that there would be no thought, no spirit of self-aggrandizement, of covetousness, or of any sordid or mercenary ambition in their debates. But, like the Fellows from the earliest date to the present, so those of the future would throw the searchlight of honest criticism into their discussions; they would try to discover the unknown and to improve and make perfect the known; they would seek light and search out the truth; and by so doing they would hope and expect to promote the welfare of mankind, and add to the honour, the dignity, and the utility of the great profession of Medicine.

### The Guests

Sir Richard Douglas Powell, Bt., K.C.V.O., said he had the honour of proposing the next toast, that of The Guests. He was sure he need say very little to commend it to the hearty acceptance of the company. The guests were, he

was happy to say, numerous, and he would endeavour to classify them. First and foremost, they had the honour of having present the Right Hon. the Lord Mayor. (Applause.) He had the great pleasure some years ago of meeting Sir Vezey Strong in the course of a voyage to Marseilles, and he remembered what a good sailor he was, and what a genial companion also. And, from the strength of his character and the calmness of his judgment, he felt quite sure Sir Vezey would hold with a strong hand that office which had been placed upon him in succession to a whole series of Lord Mayors who had occupied that exalted position during the last 500 years. They were also honoured by the presence of two former Lord Mayors. (Hear, hear.) One was Sir Joseph Dimsdale (applause), who on all great occasions upheld the prestige and glory of the Metropolis; and the other was Sir William Treloar (applause), who, as was well known, had been so strenuous in aid of the afflicted poor in his Cripples' Home. (Applause.) The House of Commons was not now in existence; he was told that it committed suicide the day before yesterday. But the House of Lords was still with us. (Applause.) It was an older institution than the House of Commons, but it had been replaced from time to time with new blood, and it was astonishing how readily and comfortably the new wine hid itself in the old bottles. (Laughter.) He had also to couple the toast with the name of Lord Blyth, who had long been known to interest himself in all questions of agriculture, and there was reason to remember the generous aid he gave to the Royal Commission on Tuberculosis. (Hear, hear.) Lord Ilkeston was a friend, and a very distinguished physician, and they were glad to welcome him in the Jubilee of his professional career, as being the only Fellow of the Royal College of Physicians who had acquired a Peerage. He believed it was the earnest desire of those noble Lords that they should remain only as titular members of that noble House. But he would assure them that their friends, some of whom they might not recognize, were determined, if possible, that they should remain where they were. There were also present the Director-Generals of the Navy and of the Army, and those gentlemen would make certain that our front fighting line should not be decimated by disease, as it often had been in the past. (Hear, hear.) An ancient cynic had said that the Church found profit in our sins, Medicine in our diseases, and the Law in our misfortunes. And so long as we had amongst us, as he feared we had, the world, the flesh, and the Devil, they were fairly sure to suffer those three professions. They might feel thankful that they had such able men to minister to them under such adverse circumstances. In the dawn of the history of the English people, it was enacted that whenever a freeman lost his life or a limb, he or his family should be recompensed by some prize awarded by legal process. And the law founded in those far-off times found its representative that evening in the person of the Right Hon. Lord Justice Fletcher Moulton (applause), Mr. Justice Lush, and Mr. Justice Carter. Sir Fletcher Moulton was a Lord of Appeal, and would be remembered for his masterly exposition with regard to the importance of vivisection before the Royal Commission. Those who were engaged in medical research were grateful for his strenuous advocacy. He was also Vice-Chancellor of the University of London. As representatives of science, there were present the President of the College of Physicians, the President of the College of Surgeons, and the President of the Medical Society of London.

The company were again honoured by the presence of Alderman Sir Thomas Crosby, who, by a long study of medicine, fully understood the physical basis of human error, and was able mercifully to administer justice in this great City. They were also honoured by the presence of Sir Almeric Fitzroy, of the Privy Council. They were very grateful for what that gentleman had done for their Society when he facilitated their obtaining a new Royal Charter. Also, the company were honoured by the presence of the Chairman of the County Council, Mr. Whitaker Thompson. There were present, also, the Secretary of the College of Surgeons, and their own Secretary, Mr. MacAlister. They had heard that evening from the President and from Sir Joseph Dimsdale how highly they all appreciated the services of Mr. MacAlister. There were also present the Honorary Secretaries of the Royal Society of Medicine, Dr. Latham, and Mr. Pendlebury, who had done such splendid service to the profession in connection with the amalgamation. Finally, there were present the members of the Press: Dr. Sprigge, editor of the *Lancet*, and the representatives of the *British Medical Journal*, the *Times*, *Daily Telegraph*, *Standard*, and other papers. They were always grateful to the Press for the manner in which they educated the public in the laws of hygiene, for the manner in which they removed prejudice, and ensured the co-operation of the public in those important matters which medical men and medical officers of health wished to place before them. There was much to interest them in some of the morning papers, by reason of the very useful suggestions which they gave to medical men in the treatment of disease (laughter), and the way they suggested short-cuts for the cure of the people in whom medical men were interested. He had the great honour of proposing that toast, coupled with the names of the Right Hon. the Lord Mayor, Lord Justice Fletcher Moulton, and Sir Thomas Barlow. (Applause.)

The Right Hon. the LORD MAYOR, in responding to the toast, said he did so on behalf of certain interests, which had been so kindly referred to by Sir Richard Douglas Powell. He fully shared the kindly recollections of the delightful trip which he took with Sir Richard along the Mediterranean, when that gentleman won all hearts and easily led all intellects of those aboard that good ship in which they sailed. He thanked the Society, on behalf of the Corporation of London, which he had the honour to represent, for permitting him to attend that festival and to respond to the toast. He wished them to understand how much he appreciated being present at a gathering of the kind. The citizens of London not only valued the hospitality afforded, but they appreciated the rarer treat of things intellectual—the feast of reason, the flow of soul, in which the Royal Society of Medicine so abounded. It enlarged one's sympathies, widened one's knowledge, and sharpened one's wits to be permitted to share in a gathering of the kind. And he would venture with great respect to suggest that it was of some value to this professional audience occasionally to descend to mother earth and associate with mere laymen. And, as an audacious layman, he would further suggest that the more intelligent laymen might in some matters offer opinions which possibly could be deemed of some value even on matters connected with the medical profession. If the great profession of Medicine had a fault it was, he thought, in being too exclusive.

Laymen must be possessed of some little knowledge of, and certainly had a vital interest in, all things engrossing the attention of medical men, and he was one of those who thought that during those intervals when laymen were honoured with a closer association with the profession, which they highly appreciated, the advantage was not always wholly and exclusively on their side. At that late hour he would only add how grateful he was, on behalf of the City and in the name of all those for whom he was permitted to speak, in being allowed to partake of the Society's hospitality and to enjoy its intellectual companionship.

Sir THOMAS BARLOW, Bt., K.C.V.O., President of the Royal College of Physicians, said it seemed to him something of an anomaly that he should be asked to reply for the guests on that occasion. It was as though a child of the house were asked to play the *rôle* of acquaintance or friend, for from his youth up he had had the infinite privilege of being a Fellow of the Royal Medical and Chirurgical Society and a member of two of its most vigorous off-shoots—the Pathological and the Clinical, which were now Sections of the Royal Society of Medicine. But he was told that in his capacity of President of the College of Physicians it was his duty to return thanks on behalf of the medical guests and he tendered their grateful thanks for the Society's gracious hospitality and took occasion at the same time to congratulate the Society on its signal success. When it was remembered that for a whole generation some of the strongest men in the profession had tried to bring about that unification and had failed, they could not but express their gratitude to Sir William Church and Sir Richard Douglas Powell, as well as to the indefatigable Honorary Secretaries of the Society, Dr. Latham and Mr. Pendlebury, and last but not least to their friend Mr. MacAlister, for their yeoman's work towards the same end. The number of Fellows had increased manifold, the meetings had been more interesting than ever, and the *Proceedings* of the various Sections as now issued formed a conspectus of the progress of those sciences such as could not be surpassed in any language in the world. He expressed the wish of the College of Physicians that the Society might go on prospering, and still afford abundant opportunity for the statement and elucidation of new knowledge and its dissemination far and wide, and that its *Proceedings* would be as notable and admirable as of yore. They looked to the Society to preserve the high tone and the ethical standard of their noble profession at the level it had always maintained. He concluded by pledging the health of its illustrious President, Sir Henry Morris, than whom there was no man who had shown more public spirit or a loftier sense of the duties of his post.

The Right Hon. LORD JUSTICE FLETCHER MOULTON, F.R.S., said that the first lesson he learned in his profession was to know when an audience had had enough of speeches, and a glance at the clock and, he might add, at the faces around him, convinced him that that point had been reached on the present occasion. Those present had had much food for thought, through eyes and ears, since the end of their repast, and it was wise now to let them go and meditate on it all. As for himself, that which had occupied his cogitations most completely, since Sir Richard Douglas Powell's flattering speech, was to make out whether in the distribution of things in general among the three great professions, after

reserving the flesh most properly for the doctors (laughter), he had intended to give to the legal profession the world or the Devil. He rather feared he meant it to be the latter! (Laughter.) He felt it a great honour that strangers should be asked to dine at so professional a table, for among civilized as well as uncivilized nations, a fear and respect of their doctors were inculcated into the minds of the young before they could pronounce their names or even assume an erect posture, and this had been strengthened with their strength and grown with their growth. In recent years there had come to be a closer association between the laity and the profession from many causes. Doctors were just as notorious and just as important in the days of Molière, but from a different cause. Then, it was all manners and mysteries. He trusted members of the profession had not lost their manners (laughter), but in regard to mystery a great change had taken place. Educated men were now able to follow most of the scientific triumphs which had given to medical men their strength, and such things were not now attributed to mysteries. The surgeons of to-day maintained and added to the position of the profession in a remarkable way. It was usual to speak of the present as a time when the craftsman's hand had lost its cunning. The sculpture of ancient Greece was the despair of the sculptors of to-day. In painting, in silversmith's work, they acknowledged the superiority of old times. But surgeons had not to lower their flag before those of any age: they redeemed the human race from the charge that there had been any decay in manual skill. The bond between laymen and their doctors was not merely that of awe and reverence—there was a still closer bond. Health was no longer a mere personal thing. The idea of national health which must be won by national effort had seized hold of the people, and in their humble way laymen associated themselves with doctors in trying to fight the enemies of health by concerted action. All tried to do some little thing. The speaker confessed that his own particular hobby took the strange form of trying to feed the hungry. He did not refer to giving bread to starving children, but to inducing the white blood corpuscles to indulge themselves in hearty meals on the various pathogenic microbes which plague humanity. All this work must necessarily be under skilled guidance, and thus it had come about that the public looked upon the members of the medical profession rather as the officers of an army to which all belonged; and if there was anything like gratified vanity in his words, it was because he felt like a private who had been invited to an officers' mess. (Cheers.)

### The President

The President, in responding to the toast of his health, which was proposed by Sir Thomas Barlow, and pledged with acclamation, said he felt greatly honoured by it, but also much humbled, because in his office as President he made a stipulation that as he should be called upon, on this occasion, to respond for the Society he represented, his own health should not be separately toasted as well. But he forgave the breach of discipline, and felt greatly obliged and gratified by the cordiality which had been manifested towards him.

* * * * *

In addition to the usual music, a new feature was introduced in the shape of a demonstration of living micro-organisms in motion, given by Messrs. Pathé Frères by means of the cinematograph.

# THE ROYAL SOCIETY OF MEDICINE
## 15, CAVENDISH SQUARE, W.

### *STATEMENT OF LIABILITIES AND ASSETS, 30th SEPTEMBER, 1910.*

| | £ s. d. | £ s. d. |
|---|---|---|
| To £3% First Mortgage Debentures ... | | 31,250 0 0 |
| ,, Debenture Interest Accrued ... | | 294 5 5 |
| ,, Sundry Creditors ... ... | | 2,201 1 10 |
| ,, In Suspense ... ... ... | | 61 14 6 |
| ,, Pension Fund ... ... ... | | 37 10 0 |
| ,, Balance, being Surplus of Assets over Liabilities | | |
| As at 1st October, 1909 ... ... | 42,396 2 5 | |
| Income of Debenture Redemption Fund ... ... ... ... | 38 14 8 | |
| | £42,434 17 1 | |
| *Deduct*— | | |
| Balance on Sale of Investments realised for Purchase of New Site | 283 1 0 | |
| | £42,151 16 1 | |
| ,, Income and Expenditure Account— | | |
| Excess of Income over Expenditure 12 months to date ... ... | 202 6 5 | |
| | | 42,354 2 6 |
| | | £76,198 14 3 |

| | £ s. d. | £ s. d. |
|---|---|---|
| By Freehold and Leasehold Property | | 51,872 1 5 |
| ,, Furniture Fixtures and Fittings: | | |
| As at 1st October, 1909 ... ... | 2,991 7 5 | |
| Net Additions to date ... ... | 83 10 0 | |
| | 3,074 17 5 | |
| *Less* Depreciation ... ... | 171 17 11 | |
| | | 2,902 19 6 |
| ,, Contents of Library ... ... | | 9,842 14 7 |
| ,, Contents of Museum ... ... | | 1,000 0 0 |
| ,, Engravings ... ... ... | | 555 0 0 |
| ,, New Building, Expenditure to Date | 8,318 14 9 | |
| *Less* Building Fund Appeal ... | 6,118 16 4 | |
| | | 2,199 18 5 |
| ,, Sundry Debtors for Rents, Subscriptions, &c. ... ... ... | | 1,064 18 4 |
| ,, INVESTMENTS (valued as at 1st July, 1907, or at cost if since purchased): | | |
| £1,013 10s. 6d., India £3½% Stock | 1,000 0 0 | |
| £330 16s. 3d., New South Wales 4% Inscribed Stock (*Permanent Endowment Fund*) .. ... | 352 6 4 | |
| £1,106 0s. 5d., New South Wales 4% Inscribed Stock (*Debenture Redemption Fund*) ... ... | 1,184 13 7 | |
| | | 2,536 19 11 |
| Note.—The Market Price at 30/9/10 of these Investments was £2,476 10 11 | | |
| ,, Cash at Union of London and Smiths Bank, Ltd. ... .. ... | 4,220 11 0 | |
| ,, Petty Cash in Hand ... ... | 3 11 1 | |
| | | 4,224 2 1 |
| | | £76,198 14 3 |

I have examined the above Statement and the following Accounts (marked A, B and C) with the Books and Vouchers of the Society, and certify the same to be correct. I have inspected the Certificate of Value of the Freehold, Leasehold and other Premises, and have ascertained that the Inscribed Stocks are so recorded, and I have compared the Balance at the Bankers with their Certificate.

Dated this 10th day of November, 1910.

F. W. LORD, F.C.A.,
*Chartered Accountant*,
37, Walbrook, London, E.C.

## A. *INCOME AND EXPENDITURE ACCOUNT FOR THE 12 MONTHS ENDING 30th SEPTEMBER, 1910.*

| EXPENDITURE. | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| To Rent, Rates, Taxes, and Insurance .. | 661 | 1 | 7 | | | |
| ,, Salaries of Staff ... ... ... | 2,327 | 1 | 8 | | | |
| ,, Honorarium to Librarian at Removal ... | 50 | 0 | 0 | | | |
| ,, House Servants and Cleaning ... ... | 435 | 19 | 10 | | | |
| ,, Lighting, Warming, and Chandlery ... | 233 | 17 | 8 | | | |
| ,, Printing and Stationery ... ... | 671 | 10 | 1 | | | |
| ,, Stamps and Telegrams ... ... | 301 | 1 | 11½ | | | |
| ,, Meeting Expenses ... ... ... | 258 | 14 | 2 | | | |
| ,, Miscellaneous Disbursements ... ... | 419 | 17 | 7½ | | | |
| | | | | 5,359 | 4 | 7 |
| ,, Proceedings (9 issues) ... ... | 2,826 | 14 | 6 | | | |
| *Less* Advertisements (£264 14s. 5d.) and Sales (£216 0s. 8d.) ... ... | 480 | 15 | 1 | | | |
| | | | | 2,345 | 19 | 5 |
| ,, Library Purchases and Expenses ... | 982 | 13 | 8 | | | |
| *Less* Income from Gant Bequest .. | 16 | 16 | 8 | | | |
| | | | | 965 | 17 | 0 |
| ,, Repairs, Alterations, &c. ... ... | | | | 389 | 0 | 4 |
| ,, Interest on Debentures ... ... | | | | 954 | 13 | 3 |
| ,, Audit Fee ... ... ... ... | | | | 31 | 10 | 0 |
| ,, Pension to late Secretary of Obstetrical Society ... ... .. ... | | | | 65 | 0 | 0 |
| ,, Expenses of Building Fund Appeal ... | | | | 84 | 17 | 6 |
| ,, Removal Expenditure ... ... | | | | 151 | 10 | 8 |
| ,, Depreciation of Furniture, Fixtures and Fittings ... ... ... ... | | | | 171 | 17 | 11 |
| ,, Balance carried down ... .. | | | | 202 | 6 | 5 |
| | | | | £10,721 | 17 | 1 |

| INCOME. | £ | s. | d. |
|---|---|---|---|
| By Subscription Income Receivable ... ... ... | 8,183 | 11 | 0 |
| ,, Rents Receivable ... ... ... .. | 2,304 | 14 | 9 |
| ,, Income from Investments .. ... ... | 140 | 1 | 8 |
| ,, Interest on Deposit Account ... ... ... | 76 | 4 | 2 |
| ,, Fees for use of Epidiascope ... ... ... | 17 | 5 | 6 |
| | £10,721 | 17 | 1 |
| By Balance brought down ... ... ... | £202 | 6 | 5 |

## B. *PERMANENT ENDOWMENT FUND*

*As at 30th September*, 1910.

(ESTABLISHED AND CONTRIBUTED TO BY DONATIONS OF FELLOWS.)

| | £ | s. | d. | | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| From Sir Richard Quain ... ... ... ... | 100 | 0 | 0 | £330 16s. 3d. (par value) New South Wales Inscribed £4% Stock ... ... ... ... ... | 379 | 0 | 0 |
| ,, Mr. Edward Law Hussey ... .. ... | 50 | 0 | 0 | | | | |
| ,, Sir Richard Douglas Powell ... .. ... | 100 | 0 | 0 | | | | |
| ,, Mr. Edwin Unwin Berry ... ... ... | 124 | 0 | 0 | | | | |
| ,, Dr. Fitzpatrick ... ... ... ... | 5 | 0 | 0 | | | | |
| | £379 | 0 | 0 | | £379 | 0 | 0 |
| Income thereon to 30th September, 1910 .. ... | £12 | 9 | 2 | Credited to Income and Expenditure Account ... ... | £12 | 9 | 2 |

Invested in £330 16s. 3d. (par value) New South Wales Inscribed £4% Stock ("A" Account).

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## *MARSHALL HALL MEMORIAL FUND*

*As at 30th September*, 1910.

[Being the amount subscribed for a Memorial to Marshall Hall. The accumulated Interest of every five years is available as a prize for the best published work in the English language on Nervous Diseases.]

| | £ | s. | d. | £ | s. | d. | | £ | s. | d. |
|---|---|---|---|---|---|---|---|---|---|---|
| Consols at 1st July, 1907 (par value) ... | 640 | 2 | 5 | | | | Consols at 31st December, 1907 ... ... ... ... | 644 | 9 | 8 |
| Interest for three months (added to Fund) | 4 | 7 | 3 | | | | Cash on Deposit at Union of London and Smiths Bank, Ltd. | 46 | 14 | 7 |
| | | | | 644 | 9 | 8 | | | | |
| ,, thirty-six months (on Deposit) | | | | 46 | 14 | 7 | | | | |
| | | | | £691 | 4 | 3 | | £691 | 4 | 3 |

Invested in £644 9s. 8d. £2½% Consolidated Stock.

## C. *GANT BEQUEST (£500)*

*As at 30th September*, 1910.

[Being a sum of £500 bequeathed to the Society by the late Frederick James Gant (sometime Vice-President of the Society) to be invested ; the income to be spent on books to be marked "Gant Bequest"]

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Amount received from Executors of Mr. Gant ... | £500 | 0 | 0 | Purchased £510 17s. 1d. Southern Nigeria (Lagos) £3½% Inscribed Stock ... ... ... ... | £500 | 0 | 0 |
| Interest thereon to 15th September, 1910 ... ... | £16 | 16 | 8 | Applied in Library Purchases (see Income and Expenditure Account) ... ... ... ... | £16 | 16 | 8 |

Invested (1905) in £510 17s. 1d. (par value) Southern Nigeria (Lagos) £3½% Inscribed Stock.

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## *DEBENTURE REDEMPTION FUND*

*As at 30th September*, 1910.

INVESTED IN NEW SOUTH WALES £4% INSCRIBED STOCK ("B" ACCOUNT)

| | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Invested on 1st July, 1907 ... ... | 288 | 11 | 11 | | | |
| Value ... ... ... ... | | | | 307 | 7 | 2 |
| Amount purchased for £110 11s. ... ... | 100 | 0 | 0 | 110 | 11 | 0 |
| ,, ,, ,, £16 11s. 3d. ... | 15 | 3 | 9 | 16 | 11 | 3 |
| ,, ,, ,, £17 3s. 1d. ... | 15 | 17 | 2 | 17 | 3 | 1 |
| ,, ,, ,, £100 6s. ... ... | 92 | 7 | 7 | 100 | 6 | 0 |
| ,, ,, ,, £486 9s. 5d. ... | 457 | 16 | 1 | 486 | 9 | 5 |
| ,, ,, ,, £107 11s. ... ... | 100 | 0 | 0 | 107 | 11 | 0 |
| ,, ,, ,, £38 14s. 8d. ... | 36 | 3 | 11 | 38 | 14 | 8 |
| Total Stock ... | £1,106 | 0 | 5 | | | |
| Valued at ... | | | | £1,184 | 13 | 7 |

| | £ | s. | d. |
|---|---|---|---|
| Value of Stock on 30th June, 1907 ... ... ... | 307 | 7 | 2 |
| Purchase of £100 Stock (3rd March, 1908) ... ... | 110 | 11 | 0 |
| Interest to 30th September, 1908 (Invested) ... ... | 16 | 11 | 3 |
| ,, ,, ,, 1909 ,, ... ... | 17 | 3 | 1 |
| Purchase of £92 7s. 7d. Stock (3rd May, 1909) ... ... | 100 | 6 | 0 |
| ,, £457 16s. 1d. ,, (15th July, 1909) ... | 486 | 9 | 5 |
| ,, £100 ,, (19th April, 1910) ... | 107 | 11 | 0 |
| Interest to 30th September, 1910 (Invested) ... ... | 38 | 14 | 8 |
| | £1,184 | 13 | 7 |

**No. 12.**—*October 1st*, 1911.

# The Royal Society of Medicine

## OFFICIAL BULLETIN

### ANNUAL GENERAL MEETING OF FELLOWS.

At the Annual General Meeting of Fellows of the Royal Society of Medicine, held at the Society's (temporary) House, 15, Cavendish Square, W., on Friday, July 7th, 1911, at 5 p.m., Sir Henry Morris, Bt., President, in the chair.

*Minutes:* The Minutes of the last Meeting of Fellows were read and confirmed.

*Report of Council:* The President called upon Dr. Arthur Latham, the Senior Hon. Secretary, to read the Report of the Council (*see* p. 8).

The President then invited Sir William Church, the Senior Hon. Treasurer, to present the Hon. Treasurer's Report (*see* p. 9) and to report on the audited accounts which had already been published.

Sir William Church explained the Accounts, and continued as follows: I would also inform the meeting that since the general Report of the Council was written, the cash received for the Building Fund has somewhat increased, and now amounts to £9,044 16s. 6d., and the promises have, of course, been slightly and correspondingly reduced. We shall be glad to receive the amounts promised now, because there are very heavy calls to meet owing to the expenditure on the building; these still amount to £2,316 14s., and it would be a great convenience to the Society, and the saving of a certain amount of interest on the money which we have to borrow from our bankers, if the promised donations were now paid.

The President remarked that the audited accounts had been issued to all the Fellows of the Society in January last, and that copies were now available if any Fellow present desired to be furnished with one. Having asked if any comment or question was thought requisite, and none being made or asked, he proposed from the chair—

> That the Report of the Council for the year 1909-1910, together with the audited Annual Accounts for 1908-1909, be received and adopted.

This was carried unanimously.

3,300/13/10·11.

ELECTION OF OFFICERS AND OTHER MEMBERS OF COUNCILS FOR 1911-1912: As there were no counter-nominations to the various Officers and Members of Council whose names had been suspended in the Library, and of which due notice had been given, namely, the nominations by the Council itself, the President declared a ballot to be unnecessary, and he thereupon declared that the following gentlemen who had been nominated were duly and formally elected:

*President:* Sir Henry Morris, Bt., F.R.C.S. *Honorary Treasurers:* Sir William Selby Church, Bt., K.C.B., M.D.; Sir Francis H. Champneys, Bt., M.D. *Honorary Librarians:* Rickman J. Godlee, M.S.; Norman Moore, M.D. *Honorary Secretaries:* Arthur Latham, M.D.; Herbert S. Pendlebury, F.R.C.S. *Other Members of Council:* Sir William Allchin, M.D.; R. A. Gibbons, M.D.; J. Warrington Haward, F.R.C.S.; W. P. Herringham, M.D.; R. Clement Lucas, F.R.C.S.; D'Arcy Power, F.R.C.S.; H. D. Rolleston, M.D.; Charters J. Symonds, M.S.; E. F. White, F.R.C.S.

In addition to the above the Council will include the *Vice-Presidents* (being the Presidents of the Sections), viz.: W. J. McCardie, M.B.; Geo. Hobson Thompson; G. A. Sutherland, M.D.; Sir William Osler, Bt., M.D., F.R.S.; Sir Malcolm Morris, K.C.V.O.; Archibald D. Reid; Theodore Thomson, C.M.G., M.D.; StClair Thomson, M.D.; Frederick Taylor, M.D.; F. W. Mott, M.D., F.R.S.; Amand Routh, M.D.; H. Lloyd Williams; W. Milligan, M.D.; R. T. Hewlett, M.D.; Clinton T. Dent, M.C.; W. E. Dixon, M.D., F.R.S.

Sir WILLIAM CHURCH proposed that Mr. F. W. Lord should be re-elected as auditor for the coming year.

The resolution having been cordially seconded by Sir FRANCIS CHAMPNEYS and put to the Meeting, the President declared Mr. Lord duly elected.

The PRESIDENT then addressed the meeting on the work of the Session, and the changes that had taken place in the Society during the past twelve months. He referred first to a somewhat considerable list of Fellows and Members of the Society whom the Society had lost by death during the past year: James Startin, W. H. Bagnell, Mrs. F. N. Boyd, C. R. Keyser, F.R.C.S., Samuel Buckley, M.D., J. B. Rous, M.B., J. E. Platt, M.S., Sir Constantine Holman, M.D., J. Langton, F.R.C.S., A. J. Alliott, M.D., R. S. Fairbank, J. J. Macan, M.D., Sydney Ringer, M.D., F.R.S., John Anderson, M.D., C. H. Leaf, F.R.C.S., F. W. Dyce Fraser, M.D., D. Dyce Brown, M.D., G. de Gorrequèr Griffith, J. E. Pollock, M.D., W. H. C. Staveley, F.R.C.S., J. T. James, M.D., G. W. Ridley, M.S., S. Parsons-Smith, J.P., Arthur Baines, L. S. McManus, M.D., C. C. Claremont, M.D., W. W. Cadwaladr Jones, A. J. M. Bentley, M.D., W. Williams, M.D., E. H. Douty, M.D., Sir Rubert Boyce, F.R.S., J. F. Payne, M.D. He said: Some of these are names which are well known to you

all. Mrs. Boyd, for instance, well known for her practical and literary labours in the gynæcological department of the profession; and Sir Constantine Holman, who was one of our oldest Fellows, and who died in August of last year, at the age of 81, having passed a life of great activity, and rendered very great services to his profession. Mr. Langton was no less well known to you than Sir Constantine Holman, and his position as a London surgeon was a very distinct and distinguished one. The loss of Dr. J. J. Macan, who for many years was the Editor of the *British Gynæcological Journal*, will be very much felt, especially in that section of medicine in which he was so active. We have lost also that distinguished teacher of materia medica and therapeutics, and no less distinguished Physician of University College Hospital for so many years, Dr. Sydney Ringer. For some time past he had somewhat retired from his former active sphere in the profession, but still his name continued to be a household word among us all. Then there was the death of Dr. John Anderson, after a prolonged illness. He had represented the profession well as physician to more than one Viceroy of India, and was well known in London as a clinical physician with a considerable and intimate knowledge of tropical diseases, and had rendered great services as one of the physicians to the Seamen's Hospital at Greenwich. A veteran, much respected, and well known member of the profession has been lost to the Society by the death of Dr. J. E. Pollock. In the department of general practice we have lost a very active member of his profession, one whose name has been well known, especially of late, as a direct representative for England on the General Medical Council, and who had long been known also as an active member of the British Medical Association. I refer to Dr. McManus, who died in the very zenith of his life, and when all those of us who knew him had, until quite recently before his death, entertained a good expectation that there were before him a great many years of prolonged activity and usefulness. We have also lost Dr. Douty, who will be remembered by many old pupils and Cambridge men as a very able demonstrator for many years at Cambridge, and who afterwards, on account of ill-health compelling him to winter abroad, practised in the Riviera. Dr. Douty was very well known to me in connection with the Middlesex Hospital, where he studied with great success and distinction. He was a man of considerable knowledge, of notable ability, of great industry, and of marked earnestness of character; and he was also well thought of by those who had been his patients. By the death of Sir Rubert Boyce tropical medicine has suffered the loss of a well-known exponent of the scientific researches into tropical diseases. We must all regret that his life has been curtailed, and that medicine can no longer derive benefit from his pursuit of ætiological science. In November, 1910, there died in his 71st year a physician of profound learning and great culture, whose position in the profession of literature, as well as of medicine, requires that special mention should be here made of him, though he had withdrawn his name from our Society since 1909. I refer to Dr. Joseph Frank Payne, a profound student, a ripe, an accurate and a great scholar, an able teacher, a learned physician, a humane and compassionate man, and a sincere and reliable friend. His valuable services as assistant physician and physician at St. Thomas's Hospital for nearly thirty

years, and his long continued, intimate, enlightened and illuminating association with the Royal College of Physicians will cause his name to find a permanent place in the records not only of these institutions themselves, but also in the history of the medical profession of the nineteenth and first part of the twentieth centuries. There are other names, too, in the obituary list of the year, well known to many of you, whose loss in no small degree is regretted by us all.

A matter which I would like to refer to is the fact that, in spite of great difficulties, the work of the Society has been carried on very successfully and very thoroughly. I think the reports which you have heard read to you to-day, both with regard to the general business of the Society, and also with regard to the Library, show that in spite of all the great disadvantages under which the work has been carried on owing to the cramping in regard to room, and the disarrangement of the contents of the Library, the success with which those difficulties have been met is by no means inconsiderable. One thing has been lacking, owing to the fact that there has been too little room in our present house, and we have not been able to get suitable accommodation elsewhere for the purpose. I refer to the omission of any large general meeting for a general discussion. It is contemplated, and I think it has been from the first intended, that there should, with few exceptions, in the future be a debate on some subject of general medical and surgical importance, during the course of each year. None has taken place this year, for the reason I have mentioned. There have been, however, interesting discussions of great importance carried on in several of the sections. For instance, in the Otological Section there were important discussions on "Syphilis in Relation to Otology," and on "Injuries to the Ear." In the Surgical Section there was a well-maintained discussion on "Fractures in the Neighbourhood of Joints," another on "The Treatment of Cleft Palate," and an entire meeting was also devoted to papers on "Traumatic Myositis Ossificans." In the Obstetrical and Gynæcological Section, "Cæsarean Section and its Alternatives" were fully discussed. A debate also took place in the Medical Section which attracted a great deal of interest, and I think was useful in the way of clearing up ideas as to the importance of the subject of "Albuminuria in Adolescence." The Samuel Hyde Memorial Lectures in the Climatological and Balneological Section were delivered; and a discussion on "Frontal Sinus Suppuration," was held in the Laryngological Section. Altogether there have been 118 meetings of sections during the year, 42 of which were held in the rooms of the Medical Society.

One of the subjects which, of course, occupies our thoughts largely at the present moment is the building of the Society's new house, and you have heard from the Report which has been made how matters stand in regard to it. There is very little doubt that on the occasion next year corresponding to this a report will have to be given of the work as it has been conducted for about six months in the new building, because we are promised by the builders to have the building placed at our disposal on December 1, and I think, from the progress which the work is making, that there is very good prospect of it being handed over to us even before then. Still, there will necessarily be an amount of delay, even after we are in possession of the building, because of fixtures,

removing, and furnishing; so probably it will be about the end of January or the beginning of February before we shall be able to be thoroughly settled there.

The reference to the building fund naturally brings prominently to our thoughts the question of finance, and that is a subject which, of course, seriously occupies the minds especially of the Honorary Treasurers at this moment. There is a deficiency on the Building Fund of £17,000. But may we not hope that a good prospect is before us, and that at any rate a very large proportion of that money will be provided before long? If it is not obtained, then the money will be borrowed from the bankers, who have, as you are aware, acceded to our drawing upon them to the extent of £25,000; but we shall have to pay interest at 4 per cent. on the amount we borrow. Even if we do not obtain in donations a capital fund enough to wipe off that debt, yet still we need not be down-hearted about the finances of the Society, because as soon as we remove to the new building, as you have heard from the report to-day, we shall be released at least from an annual payment of £800 a year for the rent of this house, and that £800 a year will do more than pay the interest on what we borrow. Taking the loan at £17,000, and interest thereon at 4 per cent., we shall be living at the rate of £160 a year less than we are doing at the present time. But we need, not only to save the £160 a year, but to have the whole of the £800 a year to make use of for various purposes for which this Society has been established, and for the work which we all hope it will in time be able to carry on. One thing greatly needed is a standard reference library. We want not only to make further additions to our lending library, but also to build up a good reference library, the mere nucleus only of which is at present in existence.

There is another thing required, which is a costly matter, which has been already started but which it is very desirable to extend, and that is to supply our non-resident Fellows with the abstracts of the various papers which they wish to have. That was a suggestion by the Secretary, Mr. MacAlister; it has been carried out in the case of Fellows residing abroad, and it has met with the fullest appreciation. It is obvious from the success and the appreciation with which that step has been followed, that its extension would be of great advantage to Fellows who are not living in London.

Altogether the work of this great Society is being well maintained at a high level, and nobody can doubt the great usefulness of the services and the distinguished character of the work that this Society is producing. It is gratifying for us to know that in a very few months we shall be in a building which is worthy of the Society, of its distinguished National and Metropolitan position, and of the character and importance of the work which it carries on. But at the same time we do want money, and as the occasion is exceptional, and the opportunity is very fitting, we ask all Fellows and all members of the Sections to do what they can to secure that measure of pecuniary support which would enable this Society to be placed in a firm and prosperous financial position. I feel sure that there are a large number of the members and Fellows of the Society who could, if they would, render very material assistance to the Society at this juncture, and who probably, by their

personal influence upon others who are not members of the profession, might induce them also to give the Society support. That the Society deserves support from outside, from others besides the Fellows and Members of the Sections, is quite obvious, and was well pointed out in a statement which was laid before the Lord Mayor last October, by your wish and direction. Some criticism was, no doubt, offered at the time which was hostile to that step, and I daresay there were several of us who felt we would much prefer that all the money should have been subscribed by the Fellows of the Society. But nobody can deny, I think, that there are good grounds for asking those outside to assist in a large institution of national and scientific, and professional importance such as is the Royal Society of Medicine, and we were not exceptional in taking that course. You know perfectly well that both the old Universities are asking for money in very large amounts, and you probably have seen in the last few days that a Society very analogous in some respects to this has lately put forth, through its distinguished President, a claim for support not only from the Fellows, but also from the friends of that Society, and from the oversea Members of the Empire in this country at the present moment who are interested in the work of that Society. I refer to the Royal Geographical Society. You have seen the appeal for assistance which was made by the President, Lord Curzon, and the leading article which appeared in the *Times* supporting the appeal. Lord Curzon does not hesitate to say that although small subscriptions are useful, desirable, and welcome, and although there are 5,000 Fellows of the Royal Geographical Society, yet as most of them are not in a financial position to help materially to procure the large sum of money which is wanted, that he appeals for great donations from those who have the means to give them. He appeals to the wealthy to come forward and assist the Royal Geographical Society with handsome benefactions in the shape of large money gifts.

There are many reasons why this Society, which is the leading Medical Society of this country, and which is certainly a national as well as a metropolitan institution of a very marked and useful order, should reasonably hope that it too might get assistance from the rich members of the general public, as well as from the Fellows and Members of the Society itself. But, at any rate, it must be to the Fellows and Members of the Society, I feel sure, that we must chiefly and mainly look for the realization of that amount of money which will wipe the deficit off our present building fund.

On the occasion of the Coronation, the following Loyal Address was sent to Their Majesties on behalf of the Society :—

To Their Most Excellent Majesties, King George V. and Queen Mary.

The Royal Society of Medicine, of which His Majesty graciously deigned to become both a Patron and a Fellow, desires on this occasion of Their Majesties' Coronation to offer them most humbly and respectfully its fervent wishes for their long life and prosperity. Conscious of the warm and active interest which Their Majesties have always displayed in all that concerns the welfare of their subjects, and particularly in the conditions with which the profession of Medicine has especially to deal, the Royal Society of Medicine prays that Their Majesties may long be spared to give their beneficent and powerful support to all the efforts which Charity and Science can make for the benefit of Their Majesties' subjects.

The Royal Society of Medicine humbly begs that this expression of welcome and of hope upon the occasion of Their Majesties' Coronation may be acceptable to them, coming as it does with most loyal and heartfelt wishes.

Signed, on behalf of the Council of the Royal Society of Medicine.

HENRY MORRIS, *President.*
W. S. CHURCH, F. H. CHAMPNEYS, *Honorary Treasurers.*
ARTHUR LATHAM, HERBERT S. PENDLEBURY, *Honorary Secretaries.*
J. Y. W. MACALISTER, *Secretary.*

I will now terminate my remarks by expressing my gratitude to the various officers and members of the Council for the assistance and support they have given to me personally, and for the attention they have bestowed upon the affairs of the Society during the last year. The members of the Council have been most regular in their attendance; and in regard to the officers, it is hardly necessary for me to say how efficiently they have one and all discharged their duties. All of them deserve our commendation and our gratitude, and although it is invidious to specify individuals, yet I must specially thank Mr. Pendlebury for the very great help he has rendered by making himself so thoroughly familiar with all the particulars and details in connection with the Building Committee. And I should also like specially to refer to Dr. Nachbar, for the way in which he has performed his duties in the regrettable absence of Mr. MacAlister. It is gratifying, I am sure, to all of us that Mr. MacAlister, having gone through a very serious operation, is now convalescing. He has reported himself as having returned to London, but it was deemed advisable by those who knew his condition and knew the nature of his illness, to recommend his having a further extension of leave until the end of this month. During the whole of Mr. MacAlister's long absence, Dr. Nachbar has made himself absolutely proficient in the duties of Secretary, as well as in his own regular duties as Editor. We shall all be very glad to see Mr. MacAlister back again at work, but I am bound to say that his place has been quite efficiently and thoroughly filled by Dr. Nachbar.

Mr. WARRINGTON HAWARD then proposed that a vote of thanks be given to the retiring Vice-Presidents, mentioning how much all were indebted to those who had been doing the work of the Society.

This was seconded by Mr. DURHAM.

The PRESIDENT then put the following resolution:—

> That the best thanks of the meeting be given to the retiring Vice-Presidents, namely, Mr. W. B. Bacon, Dr. J. Mitchell Bruce, Dr. Edmund Cautley, Mr. Arthur Cheatle, Professor Cushny, Dr. Colcott Fox, Dr. T. Fred. Gardner, Mr. Rickman J. Godlee, Sir Alfred Pearce Gould, Dr. H. Macnaughton-Jones, Dr. J. A. Ormerod, and Dr. P. Watson-Williams.

The resolution was carried unanimously and the meeting then terminated.

# THE ROYAL SOCIETY OF MEDICINE

## Report of the Council for the Year 1910-11

SINCE the last Annual Meeting, the Society has carried on its work with as little inconvenience to Fellows as possible at the temporary premises at 15, Cavendish Square. It has fortunately been able to obtain the use of the Meeting Room of the Medical Society at 11, Chandos Street, when necessary for the larger meetings; 42 meetings have been held there.

The Membership of the Society is as follows:—

| | | | |
|---|---|---|---|
| FELLOWS: | | | |
| | Town | 1,320 | |
| | Country | 834 | 2,327 |
| | Foreign | 173 | |
| MEMBERS OF SECTIONS: | | | |
| | Town | 241 | |
| | Country | 532 | 919 |
| | Foreign | 146 | |

Since July 1st, 1910, the losses by death have been 30 Fellows and 14 Members; by resignation 51 Fellows and 48 Members.

Eighty-eight new Fellows and 26 new Members have been elected.

Good progress is being made with the building of the Society's new house, which was commenced on December 1st, 1910, and which the builders are under contract to complete by December of this year.

The Architect's Report is as follows:—

NEW BUILDING, WIMPOLE STREET, W.

Probable progress of works to July 31st, 1911.

All Portland stonework fixed, carving completed, stonework cleaned down and scaffolding removed.

Constructions of floors and roof completed, and electric hoist removed, and centering cleared away.

Roofs and gutters covered and building made watertight.

All drains completed.

Partitions fixed and grounds for doors and skirtings, also bracketing for cornices.

Plastering will be commenced on August 1st.

FINANCES: As will be seen from the Report of the Hon. Treasurers, there is only a small balance (£202 6s. 5d.) on the year's working; but as the expenses of the Society at present include an item of £800 per annum for the rent of the temporary premises at 15, Cavendish Square, the finances of the Society will be in a wholly satisfactory condition, provided that the amount required for the new building is subscribed. The amount still required is over £17,000.

BUILDING FUND: The donations to the Building Fund are as follows:—

| | |
|---|---|
| Received ... ... ... ... ... | £8,982 |
| Promised ... ... ... ... ... | 2,356 |
| Debentures presented ... ... ... | 1,450 |
| | £12,788 |

The HONORARY TREASURERS have reported to the Council as follows:—

In presenting the Income and Expenditure Account for the year ending September 30th, 1910 (published in Official Bulletin No. 10, and issued January 24th, 1911), the Treasurers have satisfaction in noting that the Subscription Income continues to increase. This amounted during that year to £8,183 11s. as against £7,958 1s. 4d. for the preceding year. On the Expenditure side there has again been a large increase in the General Expense and Management, the total of which amounts to £5,359 4s. 7d., an increase of £744 8s. 9d. This increase is in great part due to the rent (at the rate of £800 per year) payable for our temporary premises at 15, Cavendish Square, and to the amount paid for the use of Meeting Room at 11, Chandos Street. The cost of the "Proceedings" was £2,345 19s. 5d., being £247 2s. 6d. less than in the previous year. £965 17s. was spent upon the purchase and binding of books and periodicals for the Library, a diminution of £107 2s. 1d. The credit balance amounted to £202 6s. 5d.

The Debenture Redemption Fund was increased by £146 5s. 8d.

WILLIAM S. CHURCH
FRANCIS H. CHAMPNEYS, } *Honorary Treasurers.*

The HONORARY LIBRARIANS have reported to the Council as follows:—

The work in the Library during the past year has been satisfactory; 2,537 books and pamphlets have been added. Of these 691 are volumes of periodicals taken regularly, and 305 are purchases, including 9 periodicals which are new, or were needed for the completion of sets. The remaining 1,541 are donations, including some duplicate sets of periodicals aud pamphlets already in the Library; 808 volumes have been bound.

The number of readers has been 6,693, a slight falling of from last year, which is probably accounted for by the cramped accommodation in the Society's temporary house. The number of books borrowed has been 6,805, and is about the same as in previous years.

The cataloguing is being kept up to date. Lists of modern and standard works are being prepared with a view to a partial arrangement according to subjects in the new Library.

The plan of supplying references and abstracts, free of cost, to Fellows resident abroad, suggested by the Secretary, has answered well, and has been warmly appreciated, without adding seriously to the work of the staff.

RICKMAN J. GODLEE, NORMAN MOORE, *Honorary Librarians.*

The Council regret to report that the Secretary of the Society, Mr. J. Y. W. MacAlister, has had to undergo a serious operation, but are pleased to be able to state that he is now making satisfactory progress.

HENRY MORRIS, *President.*
ARTHUR LATHAM, H. S. PENDLEBURY, *Honorary Secretaries.*

# DONATIONS TO THE LIBRARY FROM MAY 20TH, 1910, TO MAY 20TH, 1911

## BOOKS, PAMPHLETS, &c.

| | No. |
|---|---|
| Dr. S. J. Aarons | 1 |
| Dr. T. D. Acland | 2 |
| Professor J. G. Adami | 2 |
| American Association of Obstetricians and Gynæcologists | 4 |
| American Climatological Association | 1 |
| American Laryngological Association | 1 |
| American Laryngo-Rhino and Otological Society | 3 |
| Mr. Edward Arnold | 1 |
| Messrs. Baillière, Tindall & Cox | 2 |
| Mr. H. M. Barlow | 1 |
| Dr. E. A. Barton | 18 |
| Dr. H. Charlton Bastian, F.R.S. | 1 |
| Dr. F. E. Batten | 1 |
| Dr. H. Beckett-Overy | 61 |
| Dr. Léon Béco | 60 |
| Mr. T. P. Beddoes | 15 |
| Dr. A. J. M. Bentley | 1 |
| Mr. J. Bland-Sutton | 1 |
| Board of Trustees, Bellevue and allied Hospitals, New York | 1 |
| Dr. J. Mitchell Bruce | 2 |
| Sir Lauder Brunton, Bt., F.R.S. | 115 |
| Dr. W. Bulloch | 3 |
| Mr. W. Deane Butcher | 3 |
| Carnegie Foundation for the Advancement of Teaching | 1 |
| Mr. Miller Christy | 1 |
| Mr. A. L. Clarke | 1 |
| The Curator, Warren Anatomical Museum | 1 |
| Professor A. Sheridan Delépine | 3 |
| Mr. Ashley Densham | 1 |
| Director of the Clinical and Research Laboratories, St. George's Hospital | 1 |
| Sir Dyce Duckworth, Bart., M.D. | 4 |
| Edinburgh Obstetrical Society | 1 |
| Editor, *Interstate Medical Journal* | 2 |
| Editor, *Bulletin of North-Western University Medical School* | 1 |
| Professor Otto Engström | 11 |
| Dr. Washington Epps | 51 |
| Mrs. Falk | 1 |
| Dr. H. Morley Fletcher | 10 |
| Mr. N. Hay Forbes | 2 |
| Mr. H. Bellamy Gardner | 1 |
| Dr. A. E. Garrod, F.R.S. | 2 |
| Lieutenant-Colonel C. W. F. Garrell | 1 |
| Sir A. Pearce Gould, K.C.V.O. | 1 |
| Dr. A. Haig | 1 |
| Dr. F. de Havilland Hall | 4 |
| Professor W. D. Halliburton, F.R.S. | 1 |
| Dr. Henry Head, F.R.S. | 41 |
| Colonel P. Hehir | 1 |
| Dr. G. A. Heron | 110 |
| Mr. C. R. Hewitt | 2 |
| Professor F. Hobday | 1 |
| Fleet-Surgeon W. E. Home, R.N. | 1 |
| The Earl Howe | 3 |
| Dr. E. B. Hulbert | 5 |
| Dr. William Hunter | 1 |
| Dr. J. B. Hurry | 4 |
| Institution of Mechanical Engineers | 70 |
| Dr. A. C. Jordan | 2 |
| The *Lancet* (per the Editor) | 134 |
| Dr. H. A. Lediard | 6 |
| Dr. F. Semon | 1 |
| Mr. E. Muirhead Little | 5 |
| Messrs. E. and S. Livingstone | 1 |
| Mr. J. Y. W. MacAlister | 7 |
| Dr. J. J. Macan (Executors of) | 105 |
| Dr. Ellice Macdonald | 9 |
| Mrs. MacLoghlin (per Sir Henry Morris, Bart.) | 60 |
| Mr. C. Macmahon | 3 |
| Manchester Medical Society | 1 |
| Dr. H. Manders | 8 |
| Dr. Otto May | 4 |
| Medical Officer of Health, City of Liverpool | 1 |
| Medical Officer of Health, County of London | 1 |
| Medico-Chirurgical Society of Glasgow | 1 |
| Dr. Reginald Miller | 1 |
| Dr. B. Moore | 1 |
| Sir Henry Morris, Bt. | 313 |
| Mr. J. P. Lockhart Mummery | 2 |
| Dr. J. T. C. Nash | 1 |
| Navy Department, Japan | 1 |
| New York Academy of Medicine | 1 |

## Donations to the Library—(*continued.*)

| | No. |
|---|---|
| Dr. William Ogle ... ... ... ... | 1 |
| Sir Wm. Osler, Bt. F.R.S. ... ... | 3 |
| Dr. V. Patella ... ... ... ... | 1 |
| Mr. D'Arcy Power, F.R.C.S. ... ... | 2 |
| Dr. F. J. Poynton ... ... ... | 2 |
| Dr. Ravant ... ... ... ... | 2 |
| Mr. L. B. Rawling ... ... ... | 1 |
| Reading Pathological Society .. ... | 1 |
| Sir James Reid, Bart., K.C.V.O. ... | 18 |
| Research Defence Society ... ... | 1 |
| Mr. E. G. Richards ... ... ... | 1 |
| Dr. J. D. Rolleston ... ... ... | 244 |
| Mr. H. C. Ross ... ... ... ... | 1 |
| Dr. Amand Routh ... ... ... | 2 |
| Royal College of Surgeons of England... | 1 |
| Mr. William Rushton ... ... ... | 2 |
| Dr. L. W. Sambon .. ... ... | 1 |
| Dr. F. M. Sandwith ... ... ... | 14 |
| Messrs. W. B. Saunders Company ... | 1 |
| Professor E. A. Schäfer, F.R.S. ... | 8 |
| Mr. E. H. Shaw ... ... ... ... | 1 |
| Society of Tropical Medicine and Hygiene ... ... .. ... | 1 |
| Messrs. Squire & Sons ... ... ... | 1 |
| Dr. E. Stainer ... ... ... ... | 1 |
| Dr. G. W. Steeves ... ... ... | 1 |
| Mr. Sydney Stephenson ... .. ... | 13 |
| Dr. Purves Stewart ... ... ... | 3 |
| Mr. W. Stuart-Low ... ... ... | 1 |
| Dr. Septimus Sunderland ... ... | 1 |
| Surgeon-General, United States Army | 1 |
| Dr. J. M. Swan ... ... ... ... | 4 |
| Mr. C. J. S. Thompson ... ... ... | 1 |
| Mr. L. F. Thompson ... ... ... | 26 |
| Dr. W. Gilman Thompson .., ... | 11 |
| Dr. L. T. Thorne ... . ... ... ... | 3 |
| Trustees of the Forsyth Dental Infirmary, Boston, U.S.A. ... ... | 1 |
| Dr. W. Aldren Turner ... ... ... | 1 |
| Dr. George Turner, sen.... ... ... | 1 |
| University College Hospital (Medical School) ... ... ... ... | 1 |
| University of Glasgow ... ... ... | 2 |
| University of London ... ... ... | 1 |
| Mr. W. Wale ... ... .. ... | 4 |
| Mr. J. W. Thomson Walker ... ... | 2 |
| Dr. F. Parkes Weber ... ... ... | 2 |
| Wellcome Chemical Research Laboratories ... ... ... ... ... | 8 |
| Dr. Neville Wood... ... ... ... | 1 |
| Mr. Macleod Yearsley ... ... ... | 4 |
| Dr. A. Meredith Young ... ... ... | 1 |